MKC-104/204 User's Manual

Revision 1.5.0
(November, 2011)

WARNING

Do not attempt to disassemble your MKC device. Doing so may void your warranty. There are no serviceable parts inside. Please refer all servicing to qualified personnel.

TRADEMARKS

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TECHNICAL SUPPORT

If you have any questions regarding the information provided in this guide, call our technical support help line at 425-885-3863, or our toll free help line at 1-877-AVI-TECH. You can also email us at support@avitechvideo.com

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Warranty

Avitech International Corporation (herein after referred to as “Avitech”) warrants to the original purchaser of the products manufactured in its facility (the “Product”), that these products will be free from defects in material and workmanship for a period of one (1) year or fifteen (15) months from the date of shipment of the Product to the purchaser. There is a three (3) months grace period between shipping and installation.

If the Product proves to be defective during the one (1) year warranty period, the purchaser’s exclusive remedy and Avitech’s sole obligation under this warranty is expressly limited, at Avitech’s sole option, to:
(a) repairing the defective Product without charge for parts and labor; or
(b) providing a replacement in exchange for the defective Product; or
(c) if after a reasonable time is unable to correct the defect or provide a replacement Product in good working order, then the purchaser shall be entitled to recover damages subject to the limitation of liability set forth below.

LIMITATION OF LIABILITY: AVITECH’S LIABILITY UNDER THIS WARRANTY SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE DEFECTIVE PRODUCT. IN NO EVENT SHALL AVITECH BE LIABLE FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSS OF PROFITS FOR ANY BREACH OF THIS WARRANTY.

If Avitech replaces the defective Product with a replacement Product as provided under the terms of this Warranty, in no event will the term of the warranty on the replacement Product exceed the number of months remaining on the warranty covering the defective Product. Equipment manufactured by other suppliers and supplied by Avitech carries the respective manufacturer’s warranty. Avitech assumes no warranty responsibility either expressed or implied for equipment manufactured by others and supplied by Avitech.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED.

This Hardware Warranty shall not apply to any defect, failure, or damage:
(a) caused by improper use of the Product or inadequate maintenance and care of the Product;
(b) resulting from attempts by other than Avitech representatives to install, repair, or service the Product;
(c) caused by installation of the Product in a hostile operating environment or connection of the Product to incompatible equipment; or
(d) caused by the modification of the Product or integration with other products when the effect of such modification or integration increases the time or difficulties of servicing the Product.

Any Product which fails under conditions other than those specifically covered by the Hardware Warranty, will be repaired at the price of parts and labor in effect at the time of repair. Such repairs are warranted for a period of ninety (90) days from date of reshipment to customer.

Extended Warranty Options

Avitech offers OPTIONAL Extended Warranty plans that provide continuous coverage for the Product after the expiration of the Warranty Period. Contact an Avitech sales representative or details on the options that are available for your Avitech equipment.

Services and Repairs Outside the Warranty Period

Avitech make its best offer to repair products that is outside the warranty period, provided the product has not reached its end of life (EOL). The minimum charge for such repair excluding shipping and handling is $200 (US dollars).

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PHONE 1 425 885 3863 ● FAX 1 425 885 4726 ● info@avitechvideo.com ● www.avitechvideo.com

Regulatory Information

NOTE: Marking labels located on the exterior of your device indicate the regulations that your model complies with. Please check the marking labels on your device and refer to the corresponding statements in this chapter. Some notices apply to specific models only.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Avitech is not responsible for any radio or television interference caused by using cables and connectors other than those recommended. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union CE Marking and Compliance Notices

Statements of Compliance

English
This product follows the provisions of the European Directive 1999/5/EC.

Dansk (Danish)
Dette produkt er i overensstemmelse med det europæiske direktiv 1999/5/EC.

Nederlands (Dutch)
Dit product is in navolging van de bepalingen van Europees Directief 1999/5/EC.

Suomi (Finnish)
Tämä tuote noudattaa EU-direktiivin 1999/5/EC määräyksiä.

Français (French)
Ce produit est conforme aux exigences de la Directive Européenne 1999/5/EC.

Deutsch (German)
Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 1999/5/EC.

Ελληνικά (Greek)
Το προϊόν αυτό πληροί τις προβλέψεις της Ευρωπαϊκής Οδηγίας 1999/5/EC.

Íslenska (Icelandic)
Þessi vara stenst reglugerð Evrópska Efnahags Bandalagsins númer 1999/5/EC.

Italiano (Italian)
Questo prodotto è conforme alla Direttiva Europea 1999/5/EC.

Norsk (Norwegian)
Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 1999/5/EC.

Português (Portuguese)
Este produto cumpre com as normas da Diretiva Européia 1999/5/EC.

Español (Spanish)
Este producto cumple con las normas del Directivo Europeo 1999/5/EC.

Svenska (Swedish)
Denna produkt har tillverkats i enlighet med EG-direktiv 1999/5/EC.

Australia and New Zealand C-Tick Marking and Compliance Notice

Statement of Compliance

This product complies with Australia and New Zealand's standards for radio interference.

Preface

Welcome

Congratulations on purchasing this Avitech MKC (Mouse Keyboard Controller).

The Avitech MKC provides a fast and convenient way to simultaneously supervise numerous computers on single or multiple display configurations just by using one keyboard and mouse combination. MKC allows you to resize and position windows by dragging them anywhere on your display, control windows via hotkeys, switch active windows, and swap window positions. It also comes with automatic detection that allows you to connect up to a maximum of 15 units.

The Avitech MKC is compatible for controlling computers with the following operating systems:

- Windows OS: 98 Special Edition, 2000 Professional, XP, Vista, Server 2003, Server 2008, Windows 7

  NOTE: Windows NT is currently not supported.

- Linux OS: Fedora 10, Ubuntu 8.1, Scientific 5.2, RedHat 5.1, Mint 6.0, Debian 5.0, PC Linux OS 2009, Open SUSE 11.1, Mandriva 2009, CentOS 5.2
- Mac OS

About this Manual

This manual contains comprehensive information about your Avitech MKC to help you operate the device. For questions pertaining to the operation of the VCC-8000 series, refer to the VCC-8000 series manual for more details.

Throughout the manual, the following conventions are used to distinguish elements of text.

> **NOTE:** provides additional hints or information that requires special attention.

> **CAUTION:** identifies important information which, if not followed, may result in loss of data or damage to your device.

Any name of a menu, command, icon, or button that can be seen on the screen is shown in a bold typeset in this manual. For example:

On the **Start** menu, select **Settings**.

1 Getting Started

This chapter introduces you to the features and specifications, as well as the external components of your Avitech MKC. It also guides you through the process of setting up your MKC for use.

> **NOTE:** Depending on the model you purchased, the cabinet color and the look of the accessories may be different from the ones shown in this manual.

1.1 Package Contents

After unpacking the shipping carton, you should find these standard items:

Avitech MKC

Proprietary RJ-45 to RS-232 (DB9-FM) Cable
(Refer to the "NOTE" below.)

USB-A to USB-B Cable

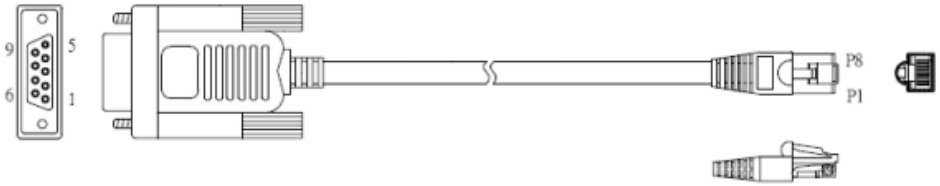
Keyboard

Mouse

Utility Disc (contains software and user's manual)

AC/DC Switching Adapter

NOTE: Due to space limitation, the serial connector is replaced with a RJ-45 connector. A proprietary RJ-45 to RS-232 (DB9-FM) cable is needed for serial function. The pin definition is shown next.



DB9-FM		RJ-45	
Pin	Assignment	Pin	Assignment
1		1	Tx
2	Tx	2	Gnd
3	Rx	3	
4		4	Rx
5	Gnd	5	Gnd
6		6	
7		7	
8	5 V	8	5 V
9			

Accessories

PS/2 Y Cable (optional)

Ear (optional) –
upon order for assembly on to rack mount

Bracket M (optional) –
upon order for assembly on to rack mount

Bracket S (optional) –
upon order for assembly on to rack mount

Faceplate (optional) –
upon order for assembly on to rack mount

Blank Panel (optional) –
upon order for assembly on to rack mount

Screws (optional) –
upon order for assembly on to rack mount

The following items may be required when longer distance connection is desired. Contact the authorized sales representatives when ordering.

USB Extender

- USB extender
  (one-in plus one-out USB port – does not include the Cat5 cable in-between)

  NOTE: Connect the AC/DC switching adapter to your MKC when connecting the USB keyboard / mouse via the USB extender.

- Optical DVI extension cable (option)

1.2 Product Features

Model	No. of Computer Connections	Compatible Multiviewer
MKC-104 (standalone mode)	Up to 4 computers	VCC-8002V VCC-8004V VCC-8004U VCC-8008C VCC-8008U
MKC-204 (cascade mode)	Up to 60 computers	VCC-8002V VCC-8004V VCC-8004U VCC-8008C VCC-8008U

Hardware

- LEDs indicate statuses of computer selected, computers on-line, MKC cascade, multiviewer connection, and power status.
- Powered through PS/2 or USB connection, or via AC/DC switching adapter.
- Automatic detection of PS/2 or USB interface when connected with computer.
- Firmware upgradeable.
- Supports daisy-chained cascade architecture for up to 60 computers.
- Hot-pluggable – add / remove computers without powering down the devices.

- Compatible with USB extender.

Software

- Keyboard lock keys (**Caps Lock**, **Num Lock**, **Scroll Lock**) automatically saved and restored when switching computers.
- Switching computers directly via hotkeys or the host cursor when the MKC is coordinated with VCC-8000 modules.
- Integration with VCC-8000 series units.
- Plug-and-Play support (USB only).
- Automatic detection and selection of optimum display resolutions.

Specifications

Parts		Specifications
I/O ports		4 × USB-B 4 × PS/2 1 × RS-485 (in) 1 × RS-485 (out) 1 × RJ-45 (host) 1 × USB-A mouse 1 × USB-A keyboard
Computer connections		Up to 60 units (maximum)
LED for Host / Computer		Lights green when on-line Lights amber when connected
Operating System compatibility		Microsoft Windows 98 SE / 2000 professional / XP / Vista / Server 2003 / Server 2008 / Windows 7 / Mac / Linux OS: Fedora 10, Ubuntu 8.1, Scientific 5.2, RedHat 5.1, Mint 6.0, Debian 5.0, PC Linux OS 2009, Open SUSE 11.1, Mandriva 2009, CentOS 5.2 **NOTE:** Windows NT is currently not supported.
Port switching method		Using keyboard hotkeys Using mouse combination keys
Power supply		Via USB or PS/2 connection, or Input: 100 – 240 V, 50 / 60 Hz, Output: 5 V DC, 2 A (external)
Housing		Metal
Dimension (W×D×H)		210×84×22 mm (8.27×3.3×0.87 inch)
Environment	Temperature	Operating: 0 °C (32 °F) to 40 °C (104 °F) Storage: –10 °C (–4 °F) to 50 °C (122 °F)
	Humidity	0 % to 80 % relative, non-condensing
Safety regulations		FCC / CE / C-Tick, Class A

Operating Modes

Two operating modes are available for the Avitech MKC:

- Host operation mode (when MKC is connected to the VCC-8000 series)
- Remote operation mode

Host Operation Mode

When the MKC is in the host operation mode, the mouse cursor is controlled by a local mouse connected to the master MKC device. A host cursor is used to control the position and size for the on-screen windows of four or more remote computers.

Remote Operation Mode

When the MKC is in the remote operation mode, the mouse cursor and keyboard are used to control a specific computer connected to the MKC.

Special functions available in the host and remote operation modes are:

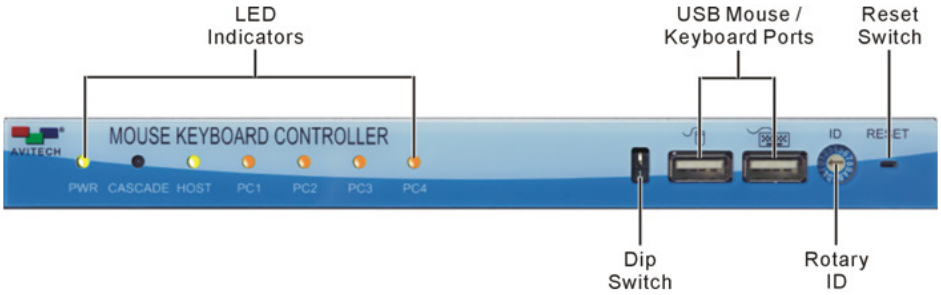
- MKCs can be connected to VCC-8000 series models through the keypad ports on the VCC-8000 modules.

  IMPORTANT: DO NOT change the default setting of 57600 baud rate.

- When the MKC is connected to a VCC-8000 series module, the host cursor of the VCC-8000 module can be activated using the mouse. After activation, the host cursor will be displayed onscreen along with the windows representing connected computers.
- When the host operation mode is active, use the mouse connected to the MKC to re-size and re-position any windows displayed using the VCC-8000 series.
- When the remote operation mode is active, operate a single computer system displayed as a window on the screen if the system is connected to the MKC through its input ports.

- To switch operation to a remote computer move the host cursor into the corresponding window on the screen and then click on the “enter” icon or double-click the left button of the mouse.
- Switch operation back to the host by using the keyboard hotkeys. The host cursor will reappear on the screen.
- A single MKC could have up to four computers connected to it. Via a VCC-8000 series, you can control the computers with all four windows shown simultaneously on a single monitor display.
- Cascade multiple MKC and VCC-8000 series modules to control more than four computers simultaneously.
- When remote operation mode is active and the mouse is located in a specific computer window, the master MKC transfers the mouse / keyboard input signal to the specific computer automatically.

1.3 Identifying the Front Hardware Components

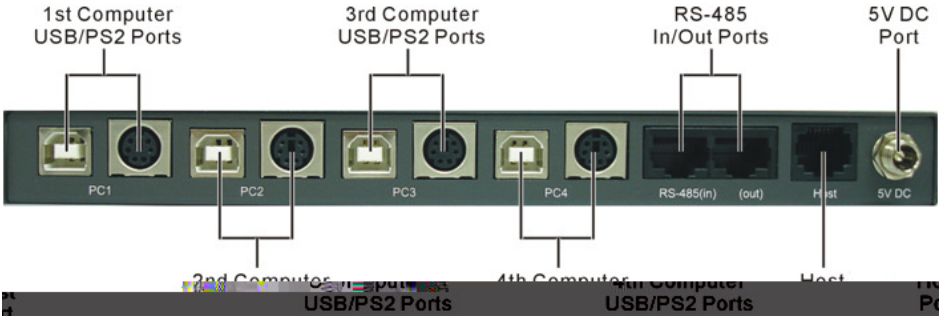


The following table shows the LED indicators on the front panel and the description.

LED	Description
PWR (power)	Lights green when the MKC is powered on.
CASCADE	Lights green when functioning as a master module.
	Lights amber when functioning as a slave module.
HOST	Lights green when operating in host mode.
	Lights amber when operating in remote computer mode.

LED	Description
PC1 – PC4	Lights green for a particular computer operating in remote computer mode.
	Lights amber for other connected computers not operating in remote computer mode.

1.4 Identifying the Rear Hardware Components



1.5 Getting Your MKC Ready for Use

The Avitech MKC can be configured to work in two setups:

- Standalone MKC
- Cascade of multiple MKCs

> **NOTE:** One MKC can be directly connected to one VCC-8000 for use without further configuration. However, cascading two or more MKC / VCC-8000 together requires the use of Galaxy software to set the cascading and system configuration before use (even if they are set as belonging to the same group).

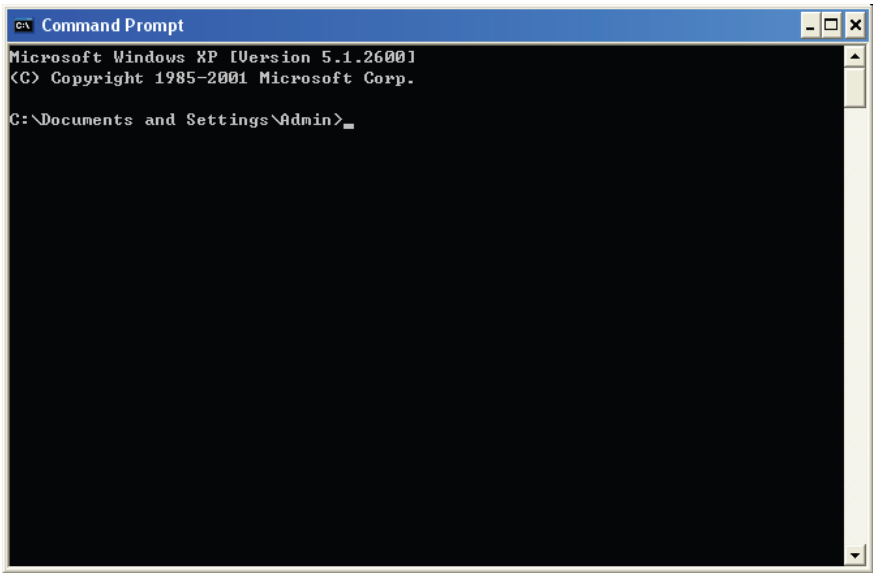
Setting-up the Galaxy Configuration Software

The Galaxy configuration software is designed for all Avitech Multiviewer modules. This program requires no installation, and should not be run from a "read-only" device, such as an optical disc. This section introduces the Galaxy software for setting up your system.

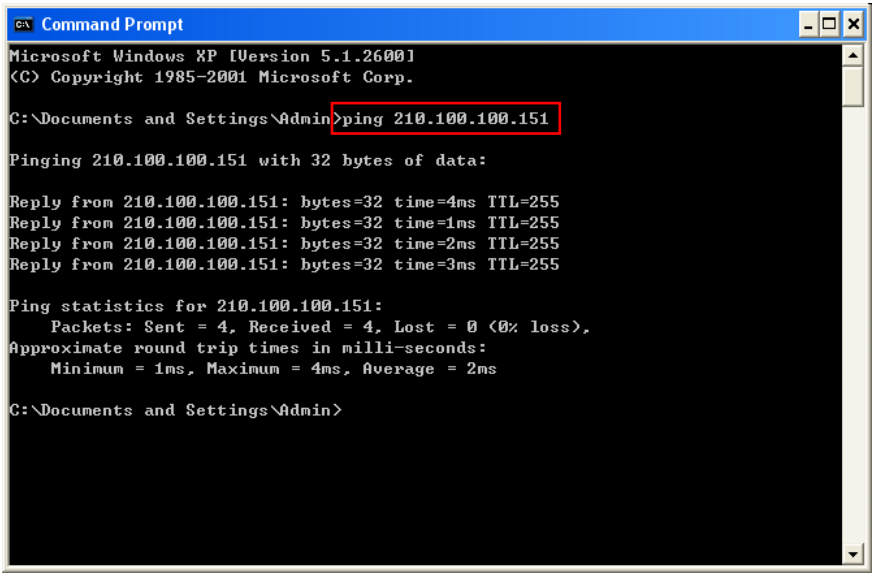
Whether you plan to use the MKC in a standalone (four computer setup) or cascade of multiple MKCs (eight computer setup) configuration, you need to initially designate and set-up the Galaxy software on a computer (running Microsoft® Windows O/S only) by performing the following steps:

1. Use the network cable (IP address) to connect by configuring your computer to the following setting: IP address "210.100.100.150" and subnet mask "255.255.255.0."

2. Make sure you can ping the module at "210.100.100.151" (factory-default IP address) by clicking on **Start→All Programs→Accessories→Command Prompt**. The following screen appears.



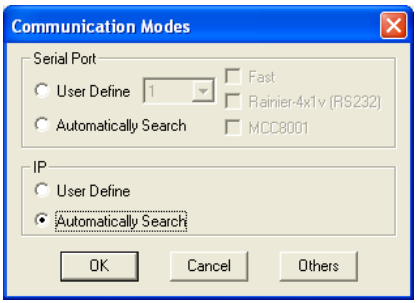
3. Type “ping 210.100.100.151” and the following screen appear to signify a successful communication.



4. Type “exit” to exit the **Command Prompt** screen.

5. Copy the “Galaxy-V31x.exe” file located on the included utility disc to your designated computer.

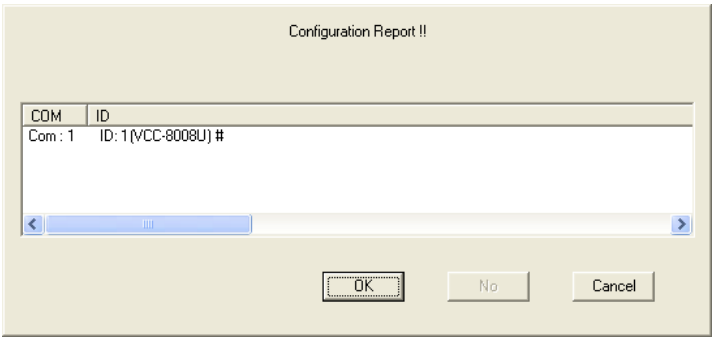
6. Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. When the following screen appears, under **IP** select **User Define** if you know the IP address assigned to your VCC-8000 series or select **Automatically Search**.



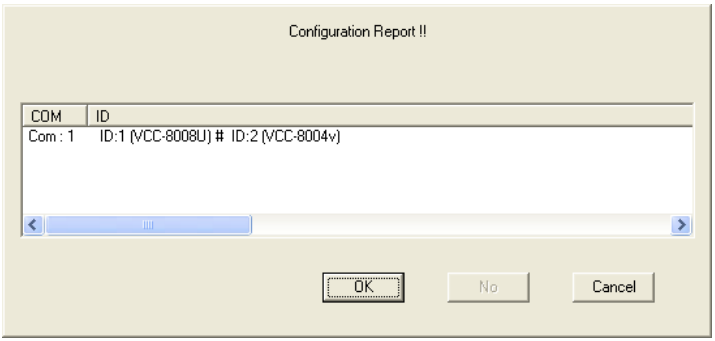
7. Click **OK** and your computer will start to search for your VCC-8000 series.

   NOTE: If you have two modules cascaded, they should also be detected.

8. Upon finding your device, the following screen will appear to confirm connection to your VCC-8000 series.



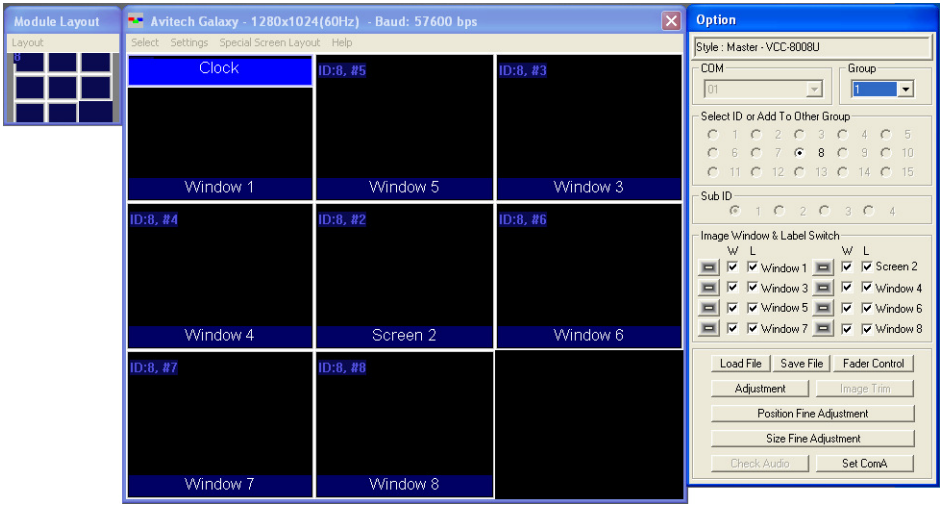
For standalone module



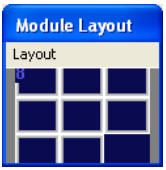
For cascaded modules

NOTE: Make sure the cascaded modules have different rotary ID settings (e.g., **1** – **2**, and so forth) on their rear panels.

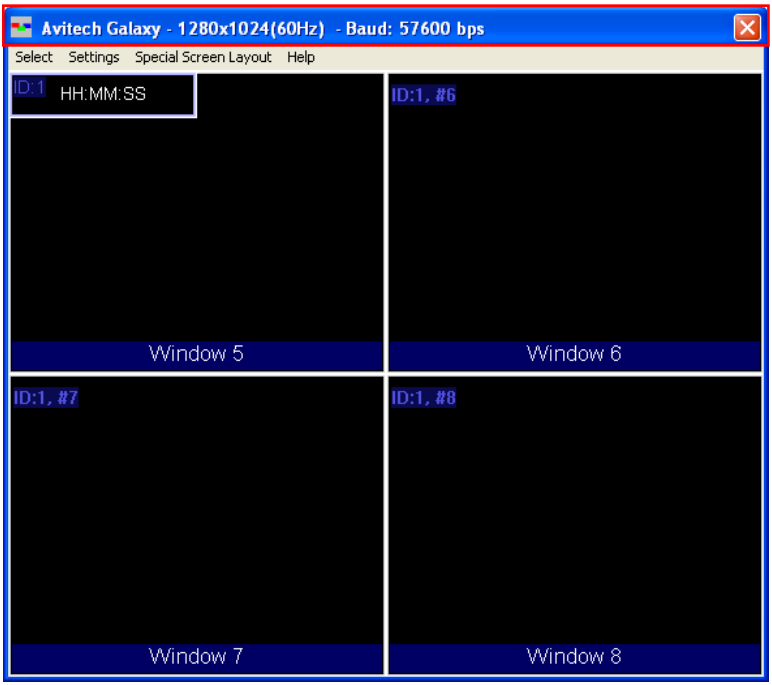
9. Click **OK** and the following screens appear: **Module Layout** window, **Galaxy** control window, and **Option** window.



- **Module Layout** window contains the bird's eye view of the module layout belonging to each ID in the system.



- **Galaxy** control window is for creating and configuring the layout.

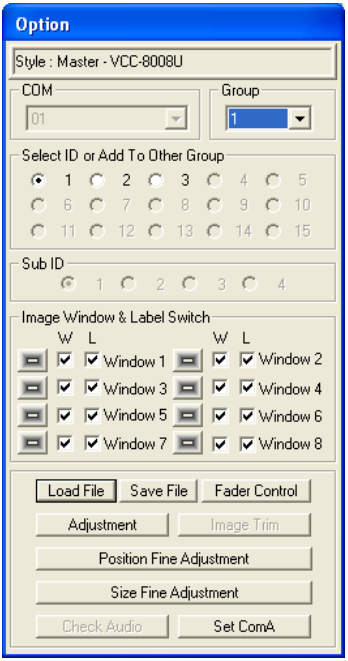


NOTE: When entering the Galaxy software for the first time, the layout for **ID: 2** may be covered by **ID: 1**.

On the title bar portion can be found the following items:

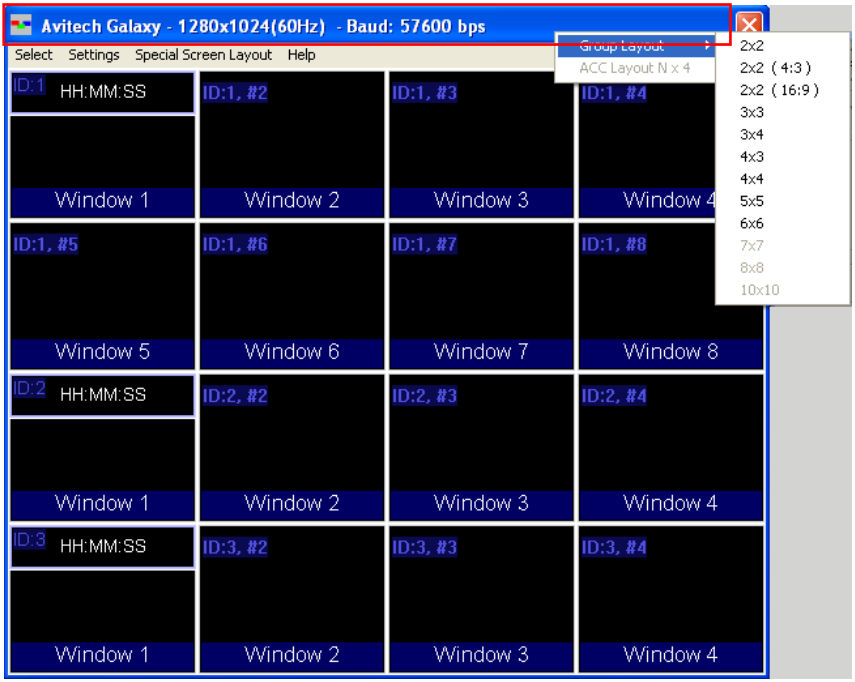
- *Logo icon* **Avitech Galaxy**: proprietary logo and the name of the software.
- **1280×1024 (60Hz)**: shows the current output resolution and frequency.
- **Baud: 57600 bps**: shows the current COM port baud rate.

- **Option** window is for group and window / label setup; save / load file; monitor audio; adjust image; window size / position; port setting.



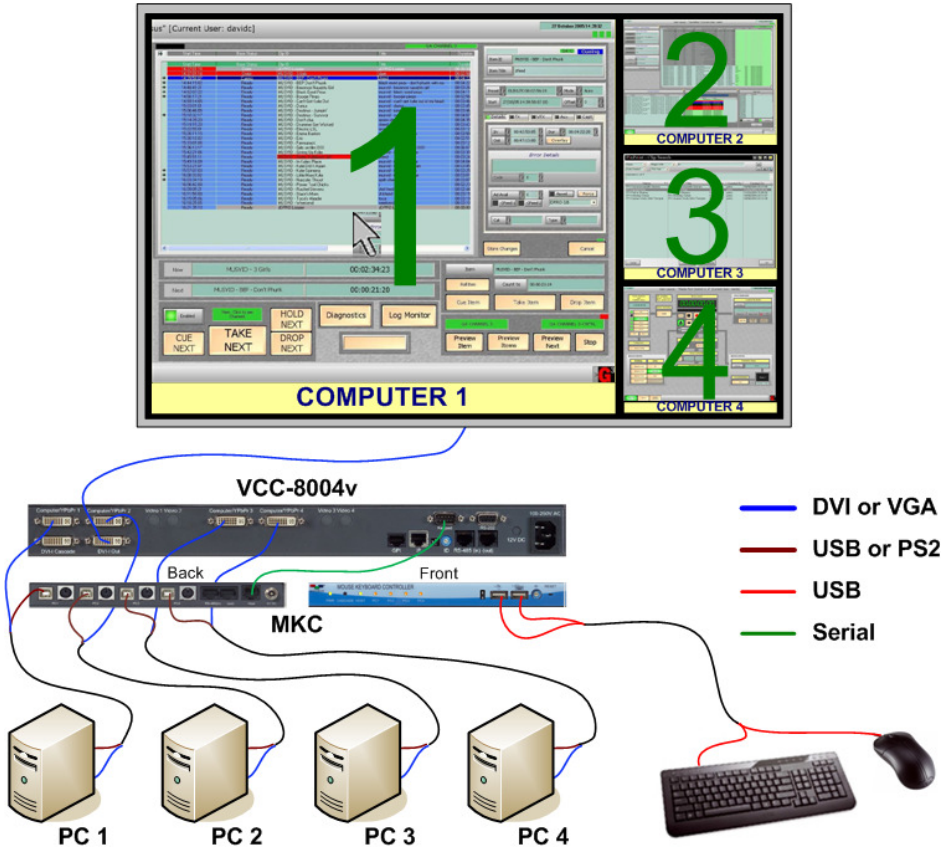
10. Right-click the mouse on the title bar to access the **Group Layout** menu. Select from **2×2** up to **10×10** as possible grid positions on the monitor display.

> **NOTE:** The layout size available for your particular model will depend on the monitor display's resolution as well as the smallest window size limitation (VCC-8000 series smallest window size is 144×128 pixel).



Standalone MKC

The following figure shows the sequence of steps to connect the Avitech MKC and VCC-8000 series to four computer systems.



To set up the Avitech MKC and VCC-8000 series, perform the following steps by referencing the previous figure:

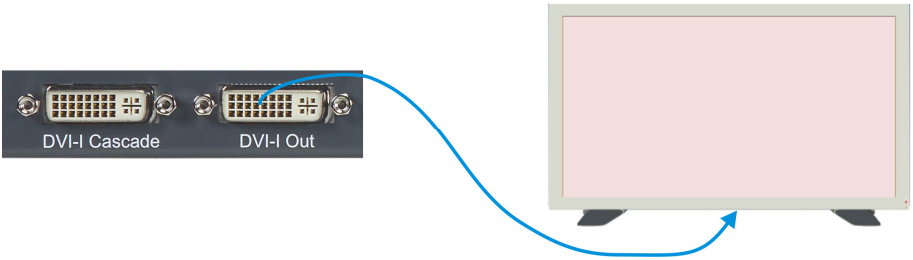
1. Make sure the VCC-8000 series has the factory-default setting by performing the following steps.
   a. Power off the VCC-8000 series.
   b. Flip the right dip switch (**2**) down.
   c. Power on the VCC-8000 series for 20 seconds.
   d. Flip the right dip switch (**2**) back up.

> **NOTE:**
> - Another method is to enter the Galaxy software to confirm if the baud rate for COM A is set at 57600 bps. If not, set it to 57600 bps.
> - Upon resetting your device to the factory-default state, your previously saved preset files will be automatically removed. You need to use the Galaxy software to set the output resolution and create the preset file(s) again.

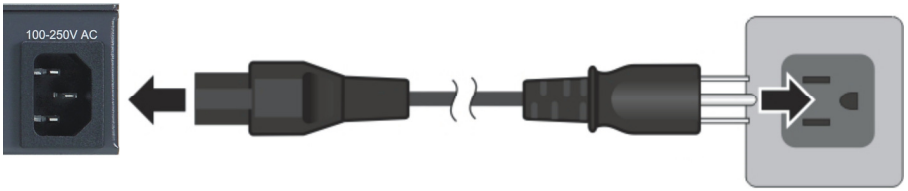
2. Set the rotary **ID** on the VCC-8000 series to **0**.

3. Connect the four DVI / VGA / YPbPr signal cables between the VCC-8000 series' **Computer/YPbPr** ports and the four computer's respective DVI / VGA ports.
   PC1 connects to the **Computer/YPbPr 1** port,
   PC2 connects to the **Computer/YPbPr 2** port,
   PC3 connects to the **Computer/YPbPr 3** port,
   PC4 connects to the **Computer/YPbPr 4** port.

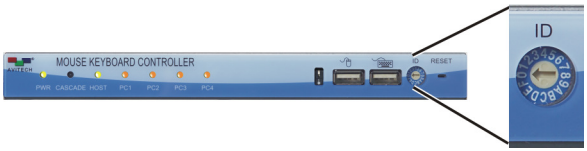
4. Connect the monitor display's DVI / VGA cable to the VCC-8000 series' **DVI-I Out**put port.



5. Connect the power cable to the VCC-8000 series and make sure that power is available.



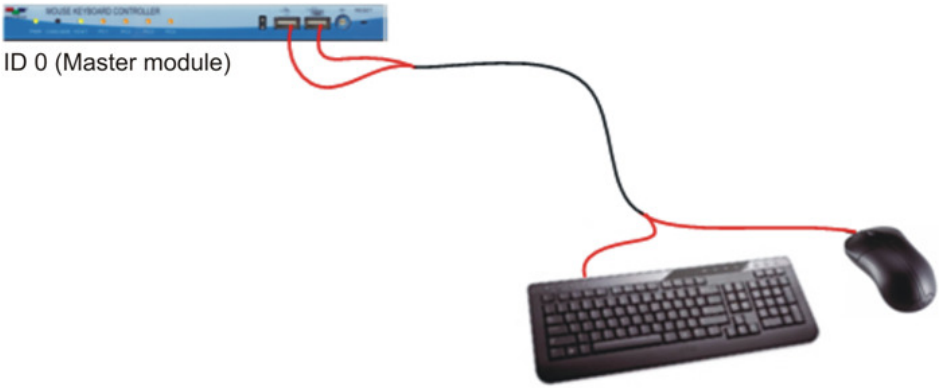
6. Set the rotary **ID** of the Avitech MKC to **0**.



NOTE:

- If the rotary **ID** of the Avitech VCC-8000 series is not set to **0**, then make sure to set the rotary **ID** of the Avitech MKC to be the same as the VCC-8000 series' (e.g., the VCC-8000 series is set at **5**, then the MKC must also be set to **5**).
- If you absolutely need to change the rotary **ID** setting of the MKC when power has already been applied to the MKC and have begun to use the MKC, you need to reboot the MKC by disconnecting and then reconnecting power to the AC/DC switching adapter because detection of rotary **ID** setting occurs only once (upon applying power to your MKC). Then make sure to set the rotary **ID** of the VCC-8000 series to be the same as the MKC's new setting (there is no need to reboot the VCC-8000 upon changing its rotary **ID** setting).

7. Connect the mouse and keyboard devices to the corresponding mouse and keyboard USB ports located on the MKC's front panel.

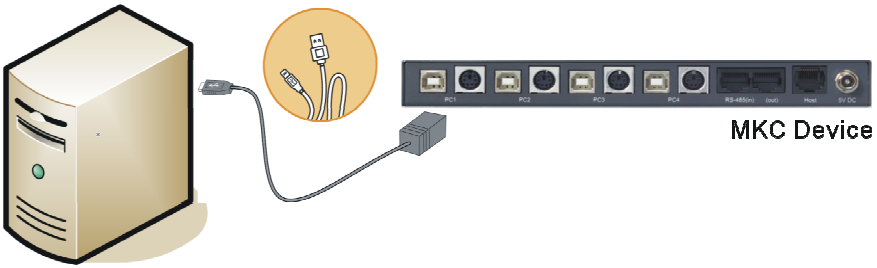


NOTE: If the mouse and keyboard is not connected to the corresponding mouse and keyboard USB ports located on the MKC's front panel, the MKC can still function properly.

8. Connect the RJ-45 to RS-232 cable between the MKC's **Host** port and VCC-8000 series' **Keypad** port.

9. Connect the AC/DC switching adapter to the MKC and make sure that power is available.

10. Use the USB-A to USB-B cables or PS/2 Y cables to perform the following. Connect the USB-A end of the cable to the computer's USB port and connect the USB-B end to the MKC's **PC1** USB port (on the rear panel). Or, use the PS/2 Y-cable to connect one end to the computer's mouse and keyboard PS/2 ports and the other end to the MKC's **PC1** PS/2 port (on the rear panel).
    For the next three computers use the USB-A to USB-B cables or PS/2 Y cables to connect to the MKC's **PC2** / **PC3** / **PC4** USB or PS/2 ports.



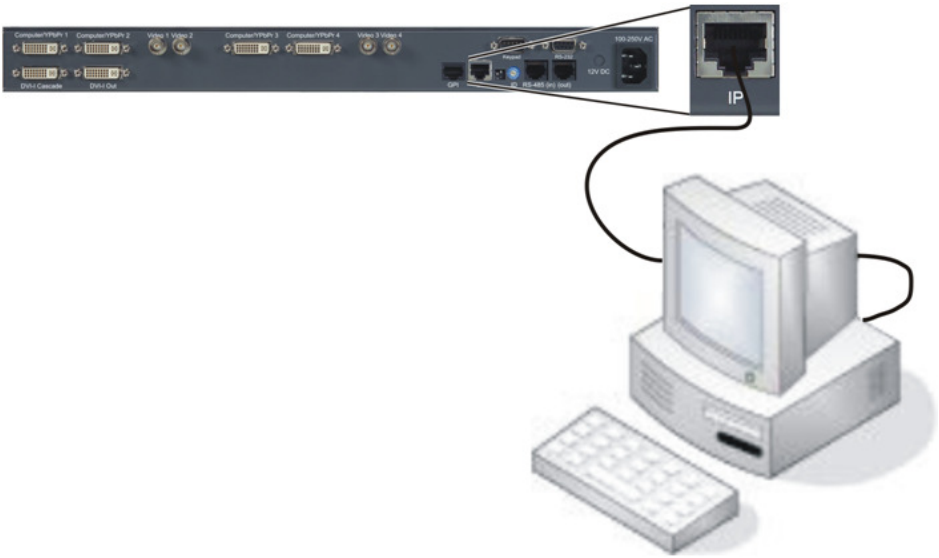
11. Move the mouse or press **Pause/Break** key and you will see the mouse pointer on the monitor display.

12. Press the **Ctrl** + **Esc** keys on your keyboard to make sure that you have disconnected from the MKC before entering the Galaxy software.

    NOTE: If you have been using the MKC whether in host mode or remote mode, press **Ctrl** + **Esc** keys on your keyboard to make sure that you have disconnected from the MKC before entering the Galaxy software again.

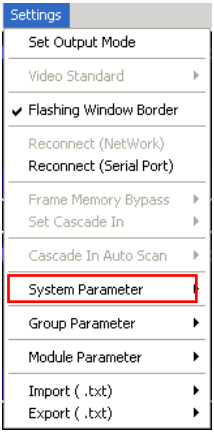
13. Move the mouse pointer to the window's top right portion of the particular computer that contains the Galaxy software and when the pop-up menu S ↵ ⛶ appears click the "↵" symbol.
    Or, double-click the mouse on the window of the particular computer that contains the Galaxy software.

14. Connect the Ethernet cable from the computer to the VCC-8000 series' **IP** port.

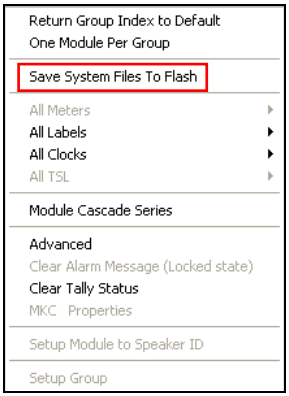


15. Start-up the Galaxy software (refer to a previous section on starting up the Galaxy software).

16. Save the configuration to flash memory by clicking **Settings→System Parameter**.



17. Then click **Save System Files to Flash**.



18. Use the Galaxy software if you wish to set your own window display layout for the VCC-8000 series instead of using the default one; as well as change labels, borders, etc.

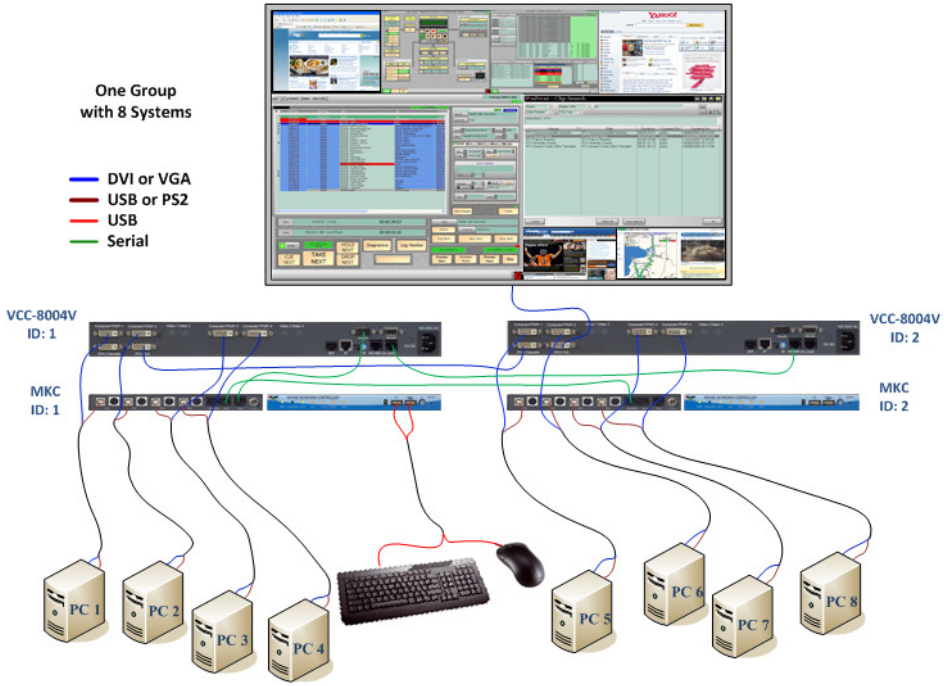
19. Then close the Galaxy software by clicking the located on the upper right corner of the Galaxy control window. You will be prompted to save the new configuration.

You can now use the mouse or keyboard hotkeys to perform various tasks (refer to the next chapter for a description of the hotkeys function). The default mouse and keyboard is located on the VCC-8000 series (Host) end.

Cascade of Multiple MKCs

Scenario 1 –

The following figure shows a sample setup of a single group with two Avitech MKC and two VCC-8000 series connected to eight computer systems.



To set up the two Avitech MKC and two VCC-8000 series, perform the following steps:

1. Make sure the two VCC-8000 series has the factory-default setting by performing the following steps.
   a. Power off the VCC-8000 series.
   b. Flip the right dip switch (**2**) down.
   c. Power on the VCC-8000 series for 20 seconds.
   d. Flip the right dip switch (**2**) back up.

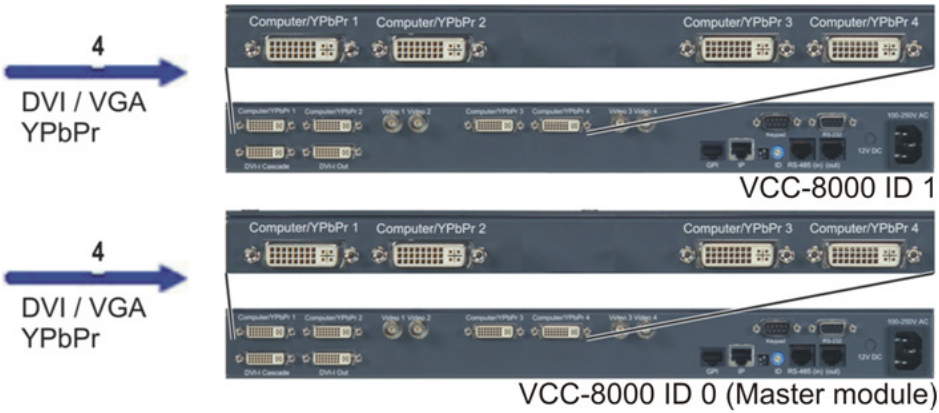
> **NOTE:**
> - Another method is to enter the Galaxy software to confirm if the baud rate for COM A is set at 57600 bps. If not, set it to 57600 bps.
> - Upon resetting your device to the factory-default state, your previously saved preset files will be automatically removed. You need to use the Galaxy software to set the output resolution and create the preset file(s) again.

2. Set the rotary **ID** on the two VCC-8000 series to **0** and **1**. The rotary ID set at **0** indicates Master (it will show ID 1 on the Galaxy software) while the rotary ID set at **1** indicates Slave (it will show ID 2 on the Galaxy software).

> **NOTE:** When cascading more than two modules, the ID sequence must be from the smallest to the biggest ID number (Master module's ID number is the smallest, the ID number of the VCC-8000 connected to the monitor display is the biggest). The host cursor is generated by the VCC-8000 with the biggest ID number.

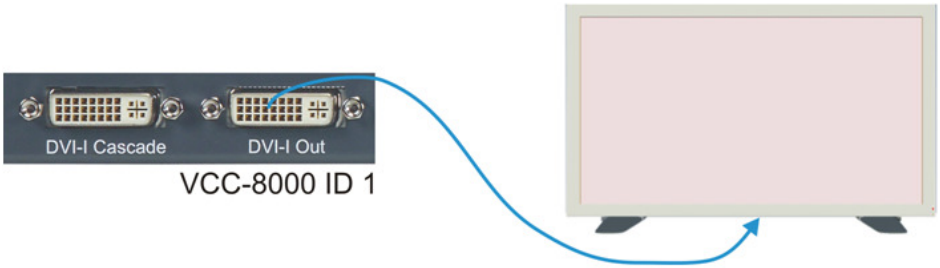
3. Use the RS-485 cable to connect one end to the VCC-8000 series' (ID1 "Master") **RS-485 (out)** port and the other end to the VCC-8000 series' (ID2 "Slave") **RS-485 (in)** port.

4. Use the eight DVI / VGA / YPbPr signal cables to perform the following. Connect the VCC-8000 series' (ID1 "Master") four **Computer/YPbPr** ports and the VCC-8000 series' (ID2 "Slave") four **Computer/YPbPr** ports to the eight computer's respective DVI / VGA ports.
   PC1 connects to ID1's **Computer/YPbPr 1** port,
   PC2 connects to ID1's **Computer/YPbPr 2** port,
   PC3 connects to ID1's **Computer/YPbPr 3** port,
   PC4 connects to ID1's **Computer/YPbPr 4** port,
   PC5 connects to ID2's **Computer/YPbPr 1** port,
   PC6 connects to ID2's **Computer/YPbPr 2** port,
   PC7 connects to ID2's **Computer/YPbPr 3** port,
   PC8 connects to ID2's **Computer/YPbPr 4** port.

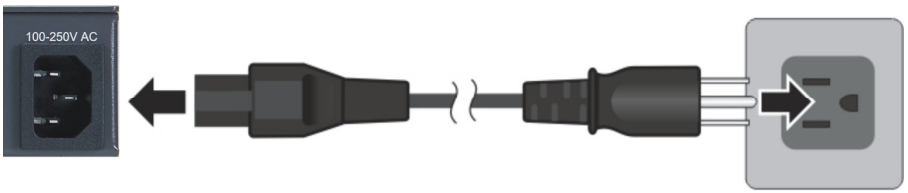


5. Use the DVI cascading cable to connect one end to the VCC-8000 series' (ID1 "Master") **DVI-I Out** port and the other end to the VCC-8000 series' (ID2 "Slave") **DVI-I Cascade** port.

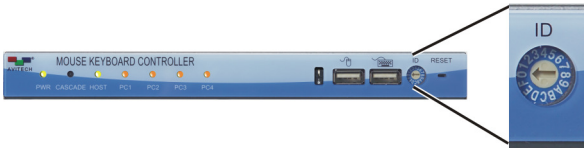
6. Connect the monitor display's DVI / VGA cable to the VCC-8000 series' (ID2 "Slave") **DVI-I Out**put port.



7. Connect the power cables to both VCC-8000 series and make sure that power is available.



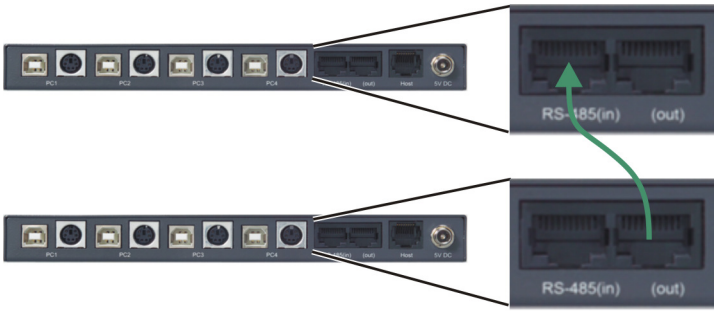
8. Set the rotary **ID** on the two MKC to **0** and **1**.



NOTE:

- If the rotary **ID** of the two Avitech VCC-8000 series is not set to **0** and **1**, then make sure to set the rotary **ID** of the Avitech MKC to be the same as the VCC-8000 series' (e.g., the VCC-8000 series is set at **5** and **6**, then the MKC must also be set to **5** and **6**).
- If you absolutely need to change the rotary **ID** setting of the MKC when power has already been applied to the MKC and have begun to use the MKC, you need to reboot the MKC by disconnecting and then reconnecting power to the AC/DC switching adapter because detection of rotary **ID** setting occurs only once (upon applying power to your MKC). Then make sure to set the rotary **ID** of the VCC-8000 series to be the same as the MKC's new setting (there is no need to reboot the VCC-8000 upon changing its rotary **ID** setting).

9. Use the RS-485 cable to connect one end to the MKC's (ID1 "Master") **RS-485 (out)** port and the other end to the MKC's (ID2 "Slave") **RS-485 (in)** port.

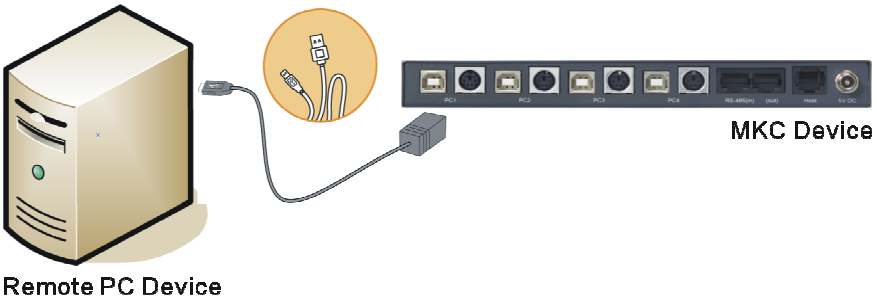


10. Connect the mouse and keyboard devices to the corresponding mouse and keyboard USB ports located on the MKC's (ID1 "Master") front panel.

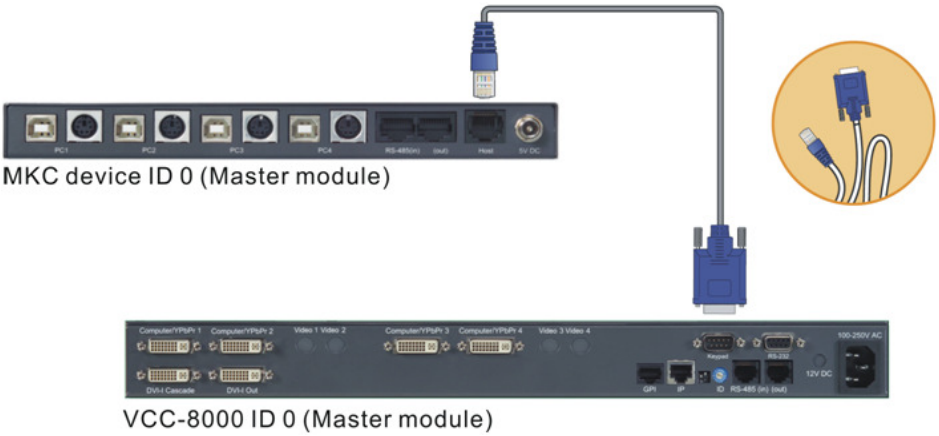
NOTE: If the mouse and keyboard is not connected to the corresponding mouse and keyboard USB ports located on the MKC's front panel, the MKC can still function properly.

11. Connect the AC/DC switching adapter to the MKC and make sure that power is available.

12. Use the USB-A to USB-B cables or PS/2 Y cables to perform the following.
    Connect the USB-A end of the cable to the computer's USB port and connect the USB-B end to the MKC's **PC1** USB port (on the rear panel).
    Or, use the PS/2 Y-cable to connect one end to the computer's mouse and keyboard PS/2 ports and the other end to the MKC's **PC1** PS/2 port (on the rear panel).
    For the next three computers use the USB-A to USB-B cables or PS/2 Y cables to connect to the MKC's (ID1 "Master") **PC2** / **PC3** / **PC4** USB or PS/2 ports.
    The remaining four computers can use the USB-A to USB-B cables or PS/2 Y cables to connect to the MKC's (ID2 "Slave") **PC1** / **PC2** / **PC3** / **PC4** USB or PS/2 ports.



13. Connect the RJ-45 to RS-232 cable between the MKC's (ID1 "Master") **Host** port and VCC-8000 series' (ID1 "Master") **Keypad** port.



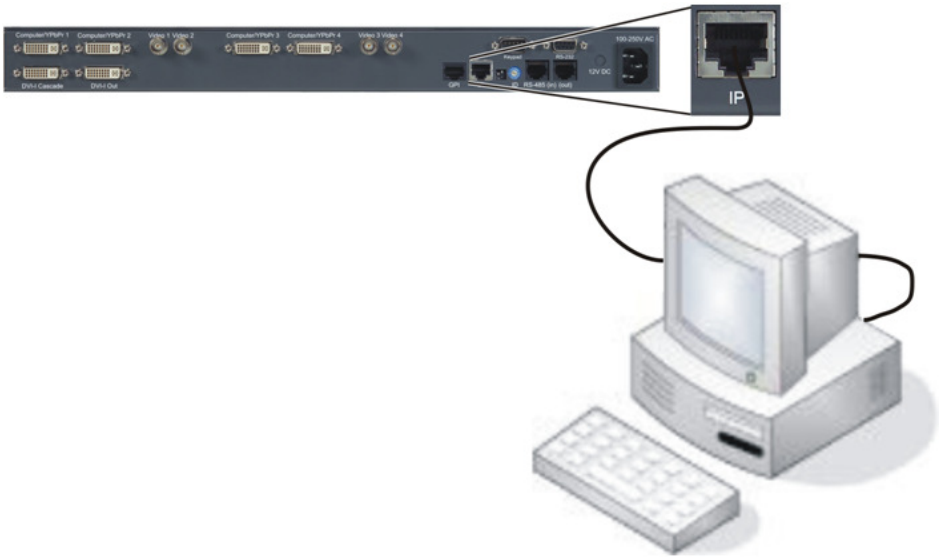
14. Move the mouse or press the **Pause/Break** key and you will see the mouse pointer on the monitor display.

15. Press the **Ctrl** + **Esc** keys on your keyboard to make sure that you have disconnected from the MKC before entering the Galaxy software.

> **NOTE:** If you have been using the MKC whether in host mode or remote mode, press **Ctrl** + **Esc** keys on your keyboard to make sure that you have disconnected from the MKC before entering the Galaxy software again.

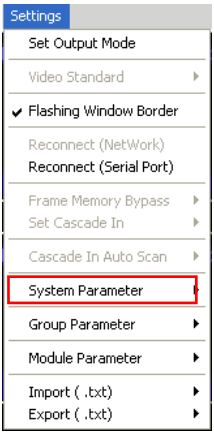
16. Move the mouse pointer to the window's top right portion of the particular computer that contains the Galaxy software and when the pop-up menu S ↵ ⛶ appears click the "↵" symbol.
    Or, double-click the mouse on the window of the particular computer that contains the Galaxy software.

17. Connect the network cable from the computer to the VCC-8000 series' (ID1 "Master") **IP** port.

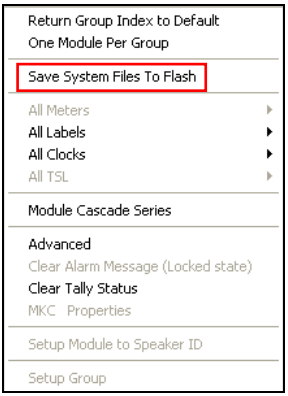


18. Start-up the Galaxy software (refer to a previous section on starting up the Galaxy software).

19. Assign the VCC-8000 series (ID1 "Master") as Group 1, assign the VCC-8000 series (ID2 "Slave") as Group 2. Or assign VCC-8000 series ID1 "Master" and ID2 "Slave" as Group 1. Then save the configuration to flash memory by clicking **Settings→System Parameter**.



20. Then click **Save System Files to Flash**.



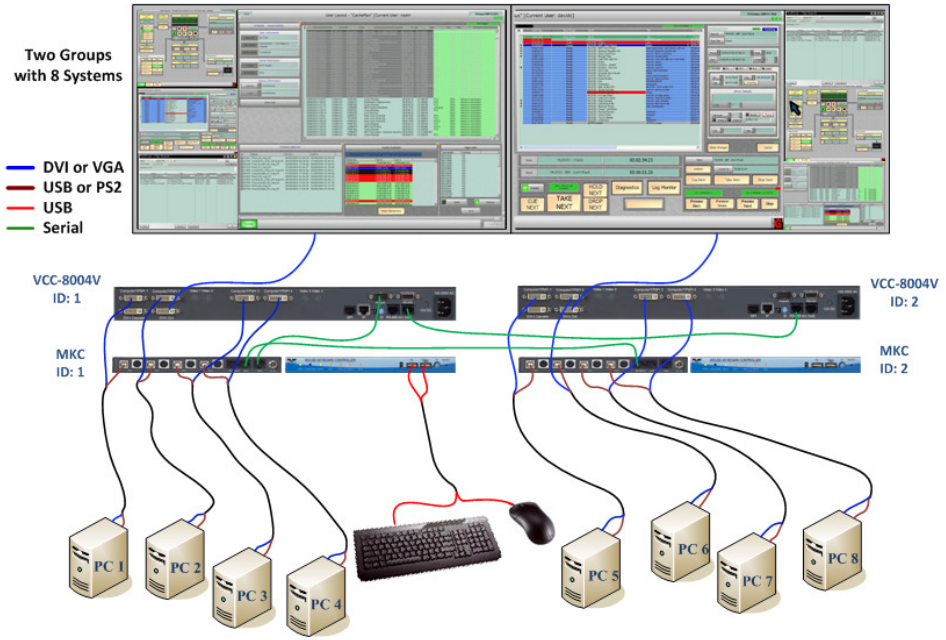
21. Use the Galaxy software if you wish to set your own window display layouts for both VCC-8000 series instead of using the default ones; as well as change labels, borders, etc.

22. Then close the Galaxy software by clicking the  located on the upper right corner of the Galaxy control window. You will be prompted to save the new configuration.

You can now use the mouse or keyboard hotkeys to perform various tasks (refer to the next chapter for a description of the hotkeys function). The default mouse and keyboard is located on the VCC-8000 series (Host) end.

Scenario 2 –

The following figure shows a sample setup of two groups with two Avitech MKC and two VCC-8000 series connected to eight computer systems.



To set up the two MKC and two VCC-8000 series, perform the following steps:

1. Make sure the two VCC-8000 series has the factory-default setting by performing the following steps.
   a. Power off the VCC-8000 series.
   b. Flip the right dip switch (**2**) down.
   c. Power on the VCC-8000 series for 20 seconds.
   d. Flip the right dip switch (**2**) back up.

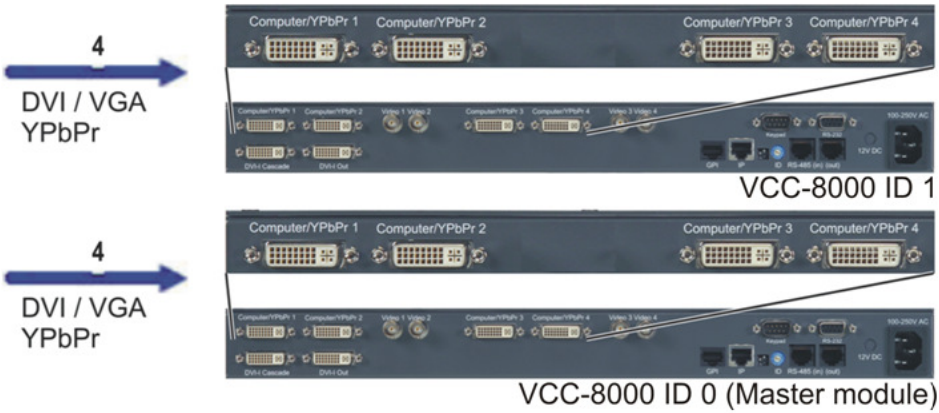
> **NOTE:**
> - Another method is to enter the Galaxy software to confirm if the baud rate for COM A is set at 57600 bps. If not, set it to 57600 bps.
> - Upon resetting your device to the factory-default state, your previously saved preset files will be automatically removed. You need to use the Galaxy software to set the output resolution and create the preset file(s) again.

2. Set the rotary **ID** on the two Avitech VCC-8000 series to **0** and **1**. The rotary ID set at **0** indicates Master (it will show ID 1 on the Galaxy software) while the rotary ID set at **1** indicates Slave (it will show ID 2 on the Galaxy software).

> **NOTE:** When cascading more than two modules, the ID sequence must be from the smallest to the biggest ID number (Master module's ID number is the smallest, the ID number of the VCC-8000 connected to the monitor display is the biggest). The host cursor is generated by the VCC-8000 with the biggest ID number.

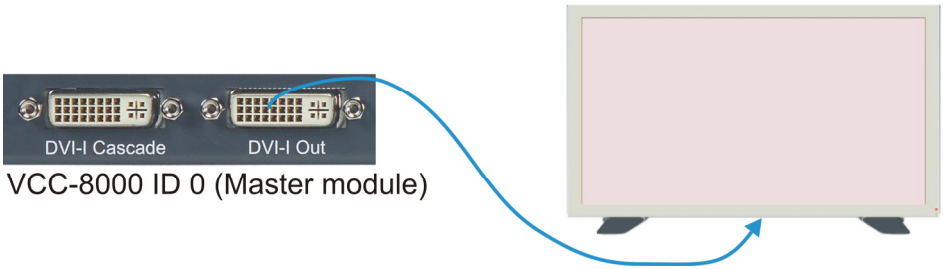
3. Use the RS-485 cable to connect one end to the VCC-8000 series' (ID1 "Master") **RS-485 (out)** port and the other end to the VCC-8000 series' (ID2 "Slave") **RS-485 (in)** port.

4. Use the eight DVI / VGA / YPbPr signal cables to perform the following. Connect the VCC-8000 series' (ID1 "Master") four **Computer/YPbPr** ports and the VCC-8000 series' (ID2 "Slave") four **Computer/YPbPr** ports to the eight computer's respective DVI / VGA ports.
   PC1 connects to ID1's **Computer/YPbPr 1** port,
   PC2 connects to ID1's **Computer/YPbPr 2** port,
   PC3 connects to ID1's **Computer/YPbPr 3** port,
   PC4 connects to ID1's **Computer/YPbPr 4** port,
   PC5 connects to ID2's **Computer/YPbPr 1** port,
   PC6 connects to ID2's **Computer/YPbPr 2** port,
   PC7 connects to ID2's **Computer/YPbPr 3** port,
   PC8 connects to ID2's **Computer/YPbPr 4** port.

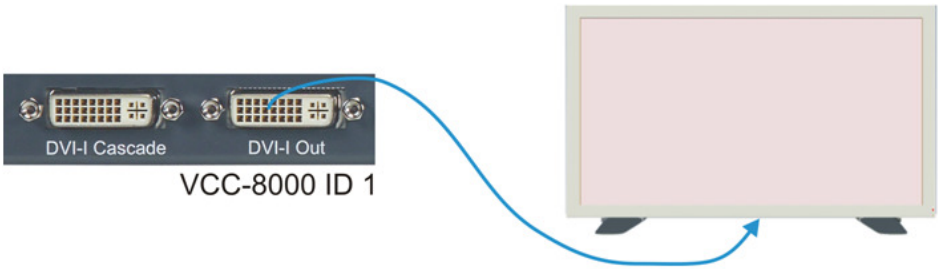


5. Use the DVI cascading cable to connect one end to the VCC-8000 series' (ID1 "Master") **DVI-I Out** port and the other end to the VCC-8000 series' (ID2 "Slave") **DVI-I Cascade** port.

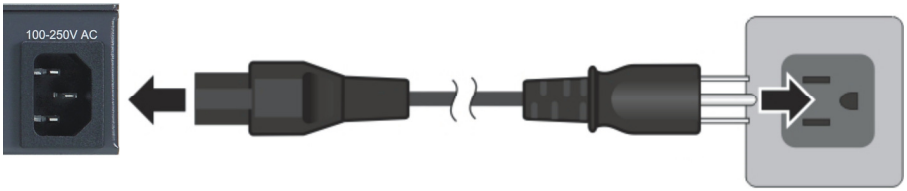
6. Connect one monitor display's DVI / VGA cable to the VCC-8000 series' (ID1 "Master") **DVI-I Out**put port.



7. Connect another monitor display's DVI / VGA cable to the VCC-8000 series' (ID2 "Slave") **DVI-I Out**put port.



8. Connect the power cables to both VCC-8000 series and make sure that power is available.

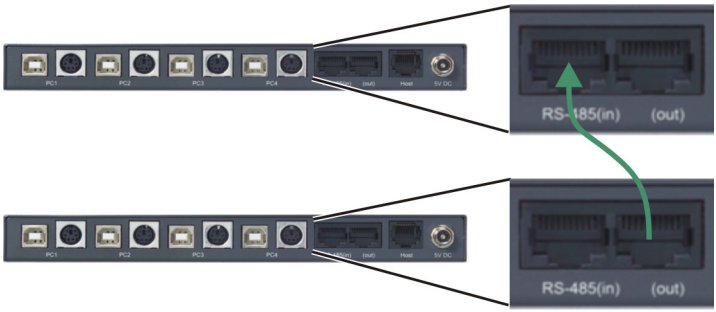


9. Set the rotary **ID** on the two MKC to **0** and **1**.

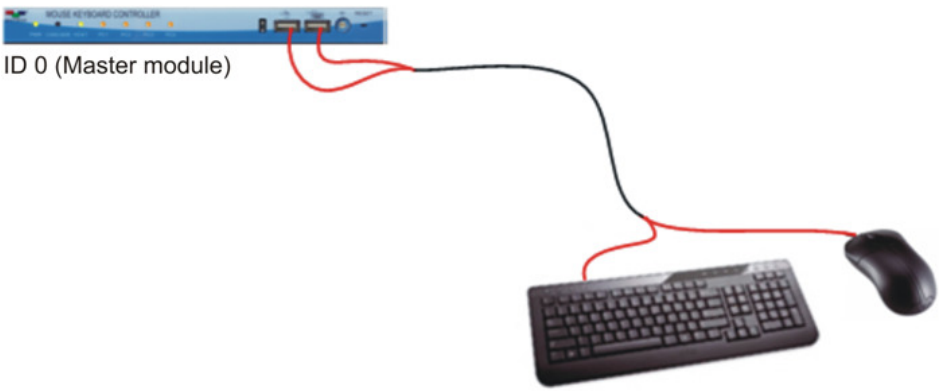
NOTE:

- If the rotary **ID** of the two Avitech VCC-8000 series is not set to **0** and **1**, then make sure to set the rotary **ID** of the Avitech MKC to be the same as the VCC-8000 series' (e.g., the VCC-8000 series is set at **5** and **6**, then the MKC must also be set to **5** and **6**).
- If you absolutely need to change the rotary **ID** setting of the MKC when power has already been applied to the MKC and have begun to use the MKC, you need to reboot the MKC by disconnecting and then reconnecting power to the AC/DC switching adapter because detection of rotary **ID** setting occurs only once (upon applying power to your MKC). Then make sure to set the rotary **ID** of the VCC-8000 series to be the same as the MKC's new setting (there is no need to reboot the VCC-8000 upon changing its rotary **ID** setting).

10. Use the RS-485 cable to connect one end to the MKC's (ID1 "Master") **RS-485 (out)** port and the other end to the MKC's (ID2 "Slave") **RS-485 (in)** port.



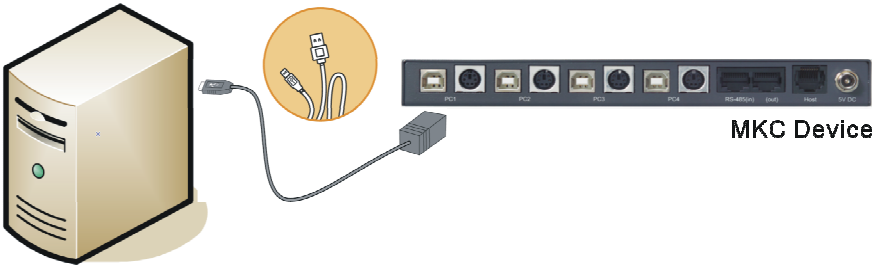
11. Connect the mouse and keyboard devices to the corresponding mouse and keyboard USB ports located on the MKC's (ID1 "Master") front panel.



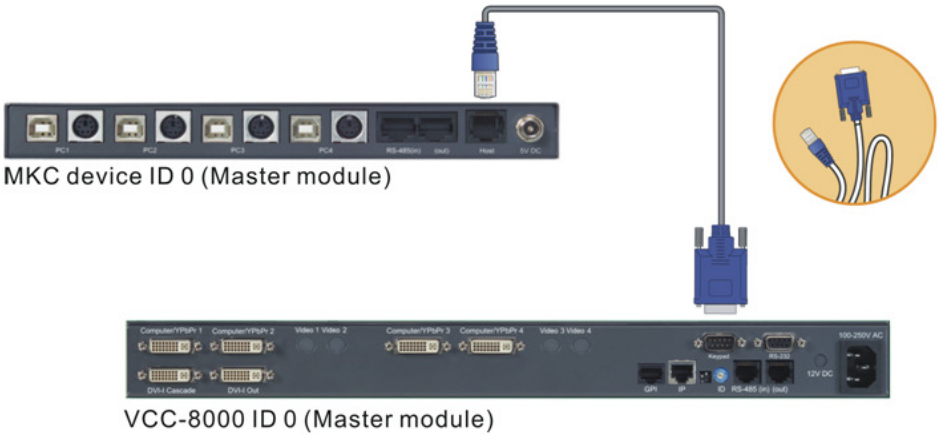
> **NOTE:** If the mouse and keyboard is not connected to the corresponding mouse and keyboard USB ports located on the MKC's front panel, the MKC can still function properly.

12. Connect the AC/DC switching adapter to the MKC and make sure that power is available.

13. Use the USB-A to USB-B cables or PS/2 Y cables to perform the following.
    Connect the USB-A end of the cable to the computer's USB port and connect the USB-B end to the MKC's **PC1** USB port (on the rear panel).
    Or, use the PS/2 Y-cable to connect one end to the computer's mouse and keyboard PS/2 ports and the other end to the MKC's **PC1** PS/2 port (on the rear panel).
    For the next three computers use the USB-A to USB-B cables or PS/2 Y cables to connect to the MKC's (ID1 "Master") **PC2** / **PC3** / **PC4** USB or PS/2 ports.
    The remaining four computers can use the USB-A to USB-B cables or PS/2 Y cables to connect to the MKC's (ID2 "Slave") **PC1** / **PC2** / **PC3** / **PC4** USB or PS/2 ports.



14. Connect the RJ-45 to RS-232 cable between the MKC's (ID1 "Master") **Host** port and VCC-8000 series' (ID1 "Master") **Keypad** port.



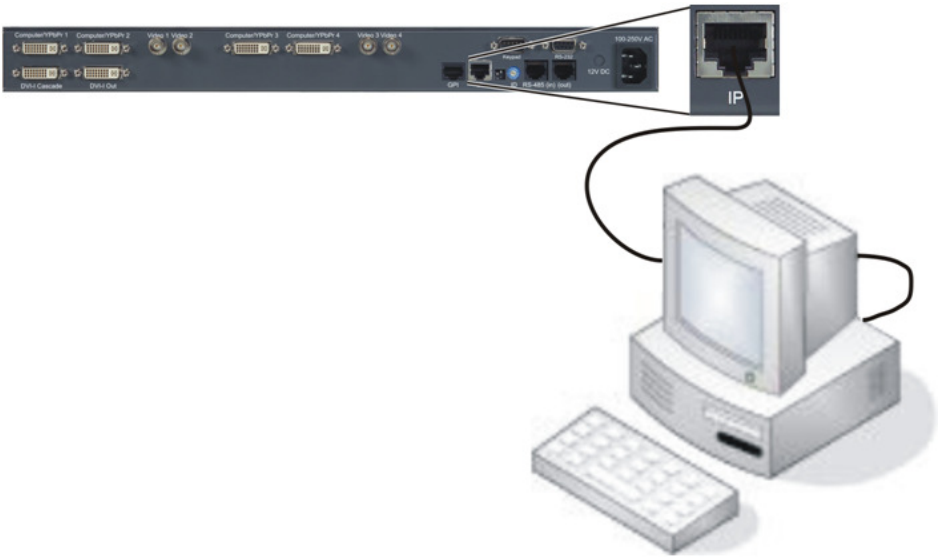
15. Move the mouse or press the **Pause/Break** key and you will see the mouse pointer on the monitor display.

16. Press the **Ctrl** + **Esc** keys on your keyboard to make sure that you have disconnected from the MKC before entering the Galaxy software.

> **NOTE:** If you have been using the MKC whether in host mode or remote mode, press **Ctrl** + **Esc** keys on your keyboard to make sure that you have disconnected from the MKC before entering the Galaxy software again.

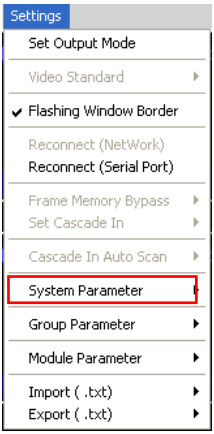
17. Move the mouse pointer to the window's top right portion of the particular computer that contains the Galaxy software and when the pop-up menu S ↵ ⛶ appears click the "↵" symbol.
    Or, double-click the mouse on the window of the particular computer that contains the Galaxy software.

18. Connect the network cable from the computer to the VCC-8000 series' (ID1 "Master") **IP** port.

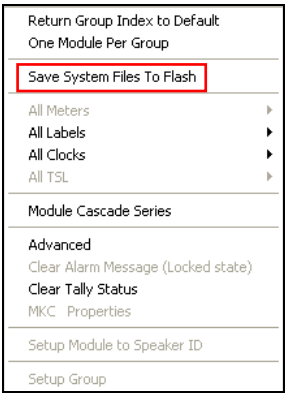


19. Start-up the Galaxy software (refer to a previous section on starting up the Galaxy software).

20. Assign the VCC-8000 series (ID1 “Master”) as Group 1, assign the VCC-8000 series (ID2 “Slave”) as Group 2. Or assign VCC-8000 series ID1 “Master” and ID2 “Slave” as Group 1. Then save the configuration to flash memory by clicking **Settings→System Parameter**.



21. Then click **Save System Files to Flash**.



22. Use the Galaxy software if you wish to set your own window display layouts for both VCC-8000 series instead of using the default ones; as well as change labels, borders, etc.

23. Then close the Galaxy software by clicking the  located on the upper right corner of the Galaxy control window. You will be prompted to save the new configuration.

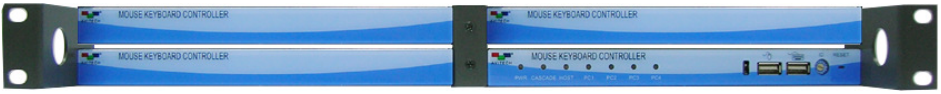
You can now use the mouse or keyboard hotkeys to perform various tasks (refer to the next chapter for a description of the hotkeys function). The default mouse and keyboard is located on the VCC-8000 series (Host) Group 1 end.

> **NOTE:**
> - If you are using the PS/2 cable to connect to the computer, you need to restart the computer.
> - Do not use both the USB-A to USB-B cable and PS/2 Y cable simultaneously on the same computer to connect to the MKC.

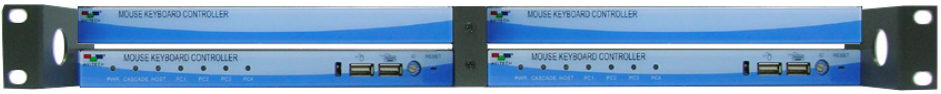
1.6 Rack Mounting the MKC

The following rack mount configurations are possible for your MKC:

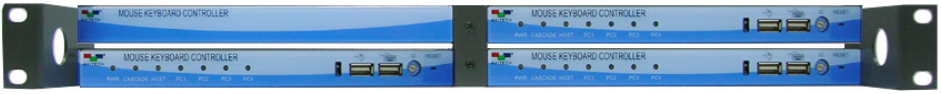
- One MKC + three blank panels



- Two MKC + two blank panels



- Three MKC + one blank panel



- Four MKC.

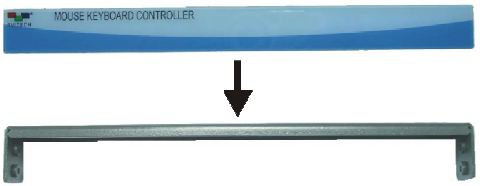
To set up the rack-mounted MKC, perform the following steps:

1. Remove the two screws on each side (near the front left and front right) of your MKC.

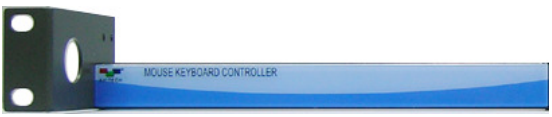
2. Align and connect the ear to the right front portion of your MKC using the included rack mount screws (2).

3. Align and connect the bracket S to the left front portion of your MKC using the included rack mount screws (2).

4. Peel off the adhesive on the back of the faceplate, then carefully align and stick it on the blank panel (this is an optional step as this is purely for esthetic value only, you may forego this step).

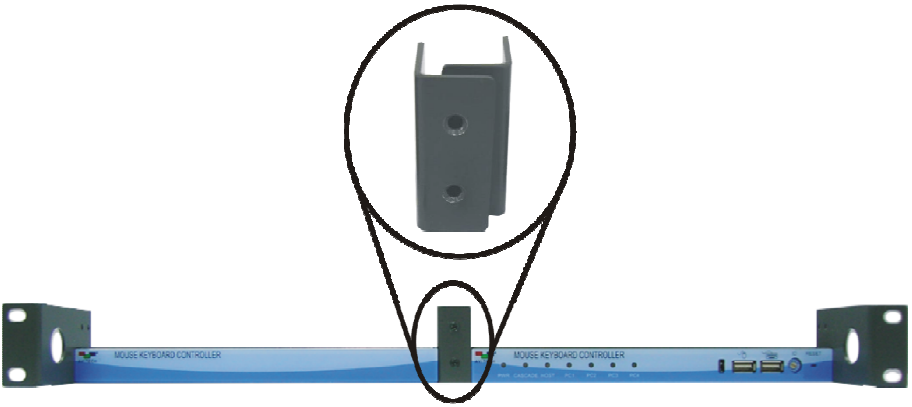


5. Align and connect the ear to the left front portion of your blank panel using the included rack mount screws (2).



6. Align and connect the bracket M to the right front portion of your MKC using the included rack mount screws (2).

7. Align and connect the left blank panel to the right MKC module by making sure to overlap the bracket M over the bracket S. Then secure using the included rack mount screws (2).



8. Secure the rack mount panel to the server rack.
9. Perform the above steps to install additional MKC or blank panel(s).

2 Basic Skills

This chapter familiarizes you with using the mouse and keyboard hotkeys to perform basic operations of your Avitech MKC.

2.1 Pop-up Selections

Upon moving the host cursor (on the VCC-8000 series – host) to the top right corner of a particular window, the following pop-up selections may appear.

- On a computer window: S 
- On a video window: S 
- On a computer window in full screen mode: 
- On a video window in full screen mode: 

S : denotes swap window (swap the positions of two windows)

 : denotes enter a computer window (enter remote operation to take control of a computer)

 : denotes full screen (maximize a selected window to fill the display)

 : denotes return from full screen

2.2 Using the Mouse

> **NOTE:** If you are a left-handed user, you may want to configure the mouse to suit your needs. You can swap the two buttons so that you can use the right button as the left button and vice versa (refer to "Setting the Various MKC Properties Features" on Chapter 3 for details).

On the VCC-8000 series (host), you can double-click the window of a particular computer to enter remote mode and control it. The next table lists the basic operations you can perform using the mouse.

Function	Action
Window resizing	Drag the border of a window to a desired size.
Window repositioning	Drag a window to a new position.
Window swapping	Move the host cursor to the top right corner of a window, select the capital letter **S**, and then click the left button. Move the host cursor (still a capital letter **S**) to the destination window and click the left button.
Full screen window	Move the host cursor to the top right corner of a window, select ⛶ then click the left button and the window will maximize to full screen mode. Again move the host cursor to the top right corner of a window, select ⛶ to return back from full screen mode.
Access a remote Computer	Method 1: Move the host cursor to the top right corner of a remote computer window, select ↵ then click the left button. The newly accessed remote system will be displayed on the editing window. Method 2: Double-click the mouse when the host cursor is on a remote PC window. The newly accessed remote system will be displayed on the editing window. The remote system that was just exited will be displayed in the window previously occupied by the newly switched remote system. From then on all the mouse and keyboard inputs will be directed to that particular remote PC.
Lock / unlock window layout	Move the host cursor to the top left corner of the display until the mouse pointer becomes a capital letter **L**, then click the left button and the window layout will be locked. Repeat the steps to return from window layout locked mode.
Switching groups (for multiple monitor display only)	Move the host cursor to the center portion of the left or right margin of the display until the mouse pointer becomes a " 🖵 ", then click the left button and the mouse cursor will switch to the left or right Group (display). For example: If you have a maximum of four groups (four monitor displays) and the host cursor is currently positioned at Group 2, move the host cursor to the center portion of the right margin until the mouse pointer becomes a " 🖵 ", then click the left button to switch the mouse cursor to Group 3 (display) – assuming that the sequence of your Group (monitor display) is 1 – 2 – 3 – 4.

2.3 Using the Keyboard

The next two tables list the basic operations you can perform using the keyboard.

Use the following hotkeys in the host operation mode only. Input letter is not case sensitive.

Keys	Function
Ctrl + Esc	Exit the MKC operation to perform set up using Galaxy software. When using serial communication, unplug the **Keypad** port cable and then plug in the cable coming from your computer's serial port to the MKC's **RS-232** port. When using IP via the network cable, there is no need to unplug the **Keypad** port cable.
Ctrl + F#	Move the host cursor from one group (screen) to the other (**F#** stands for the function keys from **F1** – **F12**). **F1** corresponds to Group 1, **F2** corresponds to Group 2, and so forth.
Ctrl + J	Perform automatic video adjustment on the window where the host cursor is currently positioned. The following two commands are valid inputs once the Automatic Video Adjustment mode is active:
I	Automatic image adjustment.
G	Automatic image gain adjustment.
Ctrl + L	Toggle lock / unlock keyboard and mouse while user is away. The keyboard and mouse will become inoperable when locked.
Ctrl + MP	Toggle a window on and off. **M** is the module ID and **P** is the processor (window) number. (e.g., holding **Ctrl** and then typing **32** will turn on / off window 2 of module ID 3) A new window will display at the upper left corner. If there is a window taking up the corner, the newly opened window may need to be moved so the previously opened window can be seen.
Ctrl + R	Toggle the locked window aspect ratio between 4:3, 16:9, and no locked ratio for the window the host cursor is currently on.
Ctrl + S	Save the latest preset to flash memory so the latest preset will be loaded on the next boot-up.
Ctrl + Y	Redo up to ten previous "undone" actions.

Keys	Function
Ctrl + Z	Undo up to ten previous actions.
↑	Load the previous user-created (via Galaxy software **Option** menu's **Save File** button) preset file.
↓	Load the next user-created (via Galaxy software **Option** menu's **Save File** button) preset file.
F#	Access a remote system press **F#** (**F#** stands for the function keys from **F1** – **F12**). **F1** corresponds to Computer 1, **F2** corresponds to Computer 2, and so forth. The newly accessed remote system will be displayed on the editing window. The remote system that was just exited will be displayed in the window previously occupied by the newly switched remote system. You can only access a remote system from the screen where it is displayed.
Shift + F#	Access a remote system (**F#** stands for the function keys from **F1** – **F12**). **F1** corresponds to Computer 1, **F2** corresponds to Computer 2, and so forth. You can only access a remote system from the screen where it is displayed. **NOTE:** You can also hold **Shift** and double-click the mouse for the same effect.
Page Up	Load the previous factory-default preset file.
Page Down	Load the next factory-default preset file.
Tab	Move the host cursor from one group (screen) to the other**.**
Alt + F#	Load the user-created preset file (**F#** stands for the function keys from **F1** – **F12** – maximum up to 12 via Galaxy software **Option** menu's **Save File** button).
Alt + F	Toggle a particular window's full screen mode on / off where the host cursor is currently residing.
Alt + L	Toggle lock / unlock window layout.

NOTE: Pressing the **Ctrl** + **Esc** hotkey or performing the "Load Preset" action will clear the undo (**Ctrl** + **Z**) / redo (**Ctrl** + **Y**) list in memory.

You can use the following hotkeys in the remote operation mode.

Key	Function
Pause Break	Exit from remote operation mode to host operation mode.
Ctrl + Esc	Exit the MKC operation to perform set up using Galaxy software. When using serial communication, unplug the **Keypad** port cable and then plug in the cable coming from your computer's serial port to the MKC's **RS-232** port. When using IP via the network cable there is no need to unplug the **Keypad** port cable.
Ctrl + Shift + Alt + V	Run the Microsoft® Notepad program, and then press **Ctrl** + **Shift** + **Alt** + **V** to read the MKC firmware version. **NOTE:** This is possible only if the computer and MKC is connected via the USB-A to USB-B cable.
Ctrl + Pause Break	Switch control (cycle) from Computer 1→Computer 2→Computer 3→Computer 4→Computer 1, and so forth. **Example 1:** If the MKC is connected to four (4) computers, then hotkey switching would be from Computer 1→Computer 2→Computer 3→Computer 4→Computer 1, and so forth. **Example 2:** If Computer 1 and Computer 3 connectors are connected to two (2) computers, Computer 2 and Video 2 connectors has no connection, and Computer 4 connector has no connection but Video 4 connector is connected to a DVD player, then hotkey switching would be from Computer 1→blank window 2 (mouse cursor will not be shown)→Computer 3→DVD player input source (mouse cursor will not be shown and no control is possible in this Remote mode)→Computer 1, and so forth. **NOTE:** This hotkey function may not yet be available for MKC-204. **CAUTION:** Make sure to press **Ctrl** key first because **Pause/Break** key would cause system to exit from Remote operation mode to Host operation mode.
Shift + Pause Break	Switch control backward (cycle) from Computer 1→Computer 4→Computer 3→Computer 2→Computer 1, and so forth. **NOTE:** **Example 1** and **Example 2** in the above illustration is also applicable for this hotkey. This hotkey function may not yet be available for MKC-204. **CAUTION:** Make sure to press **Shift** key first because **Pause/Break** key would cause system to exit Remote operation mode to Host operation mode.

3 Galaxy Software

This chapter introduces you to the Galaxy software for setting the features of VCC-8000 series when working in tandem with MKC.

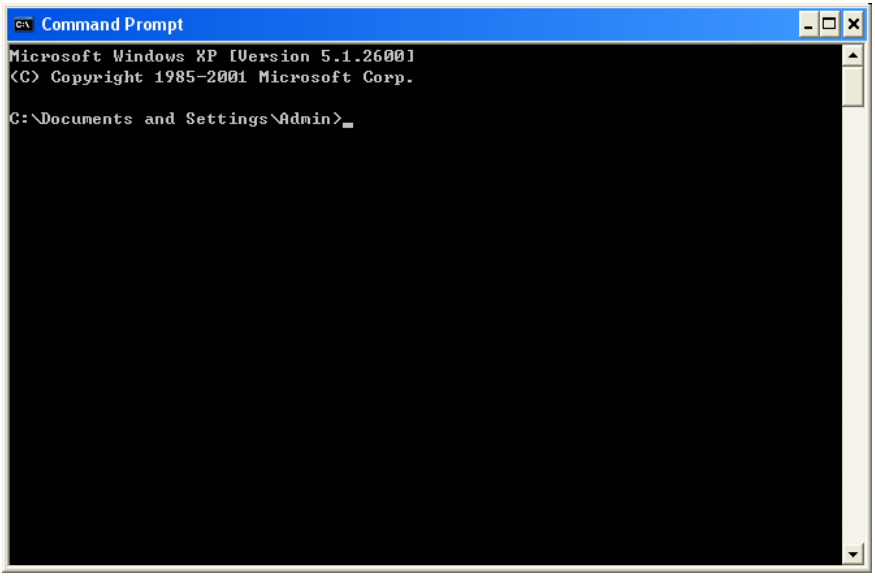
3.1 Using the Galaxy Software

The Galaxy software is designed to be used with Avitech multiviewer modules. This software can be used on your desktop or laptop computer. This section introduces the Galaxy software for setting up your system.

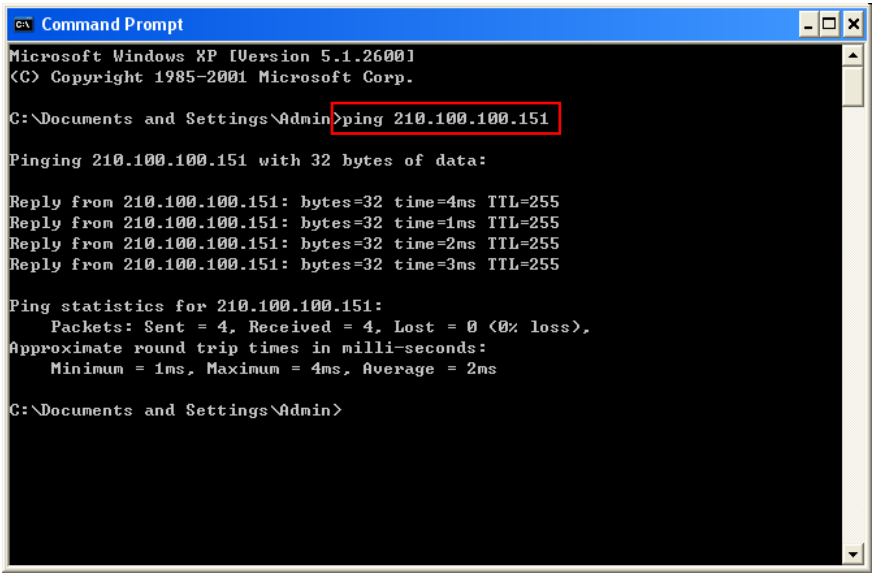
To start up the Galaxy software, perform the following steps:

1. Whether you are operating in remote or host mode, press **Ctrl** + **Esc** to exit the current MKC operation.
2. Use the network cable (IP address) to connect to the module by configuring your computer to the following settings:
   IP address “210.100.100.150” and subnet mask “255.255.255.0.”

3. Make sure you can ping the module at “210.100.100.151” (factory-default IP address) by clicking on **Start→All Programs→Accessories→Command Prompt**. The following screen will appear.



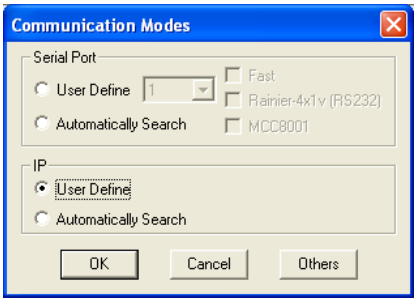
4. Type “ping 210.100.100.151” and the following screen will appear, indicating a successful communication.



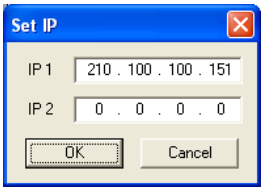
5. Type “exit” to exit the **Command Prompt** screen.

> **NOTE:** Whether you have been using the MKC in host mode or remote mode, press **Ctrl** + **Esc** on your keyboard to make sure that you have disconnected from the MKC before entering the Galaxy software.

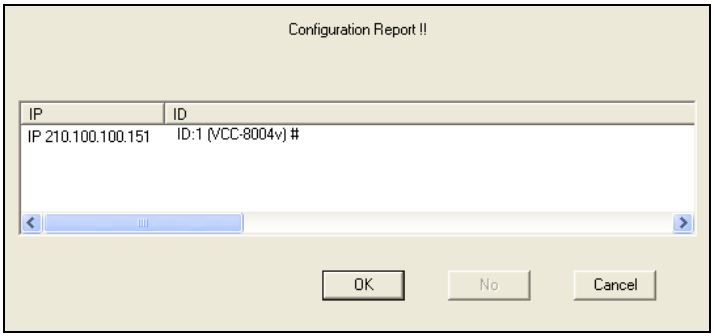
6. Run the Galaxy software by double-clicking the “Galaxy-V31x.exe” file. When the following screen appears, under **IP** choose **User Define**. Then click **OK**.



7. When the following screen appears, click **OK**.



8. The Galaxy software will automatically detect all the modules that are connected to the computer. Make sure all the modules have been detected and select **OK** to continue.

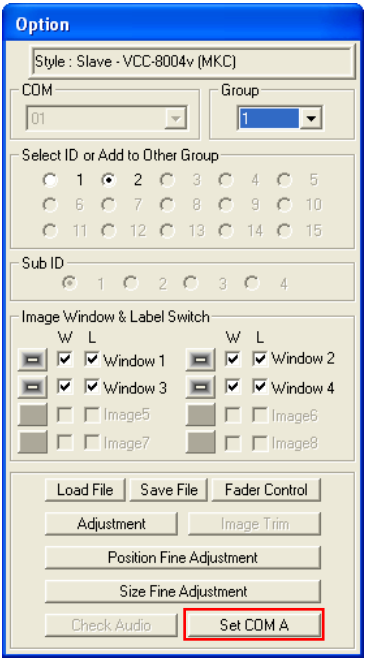


9. The Galaxy software main screen will appear.

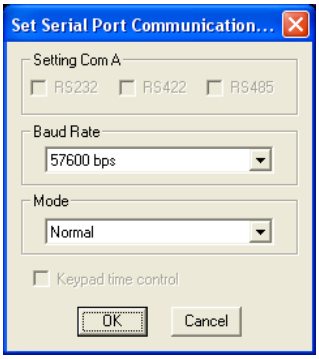
Checking the Baud Rate

By default, the baud rate is set to 57600 bps. In order to configure the serial port of the module with computer for configuration and control, check the baud rate by performing the following steps:

1. On the **Option** window, click **Set COM A**.



2. The following screen will appear.

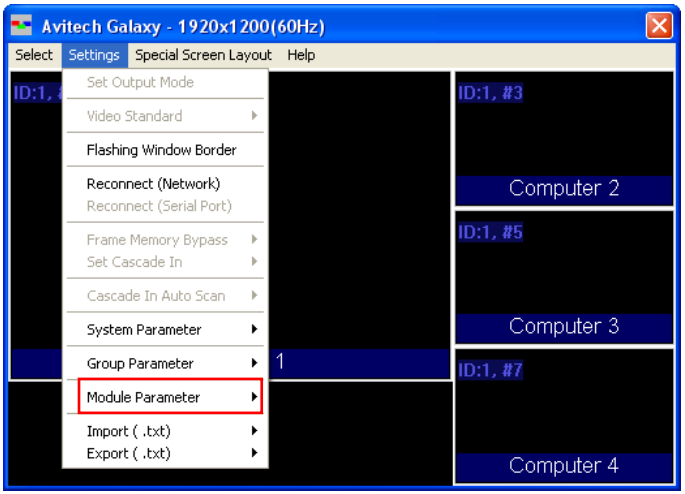


3. Check if the **Baud Rate** is set at **57600 bps**. If not, use the drop-down menu to select it.
4. After setting **Baud Rate**, you will be prompted to close the Galaxy software and power cycle (shutdown and restart) the module.

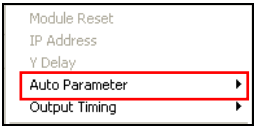
Automatic Detection of Optimum Display Resolution

By default, the VCC-8000 series will automatically detect the optimum display resolution. When using the MKC-204 for the first time or upon setting the device to the factory-default setting, automatic detection of optimum display resolution will only occur on the device that is connected to the monitor display. The rest of the cascaded devices will still retain their factory-default settings. Use the Galaxy software to disable this feature for an individual module by performing the following steps:

1. Click **Settings** then **Module Parameter**.



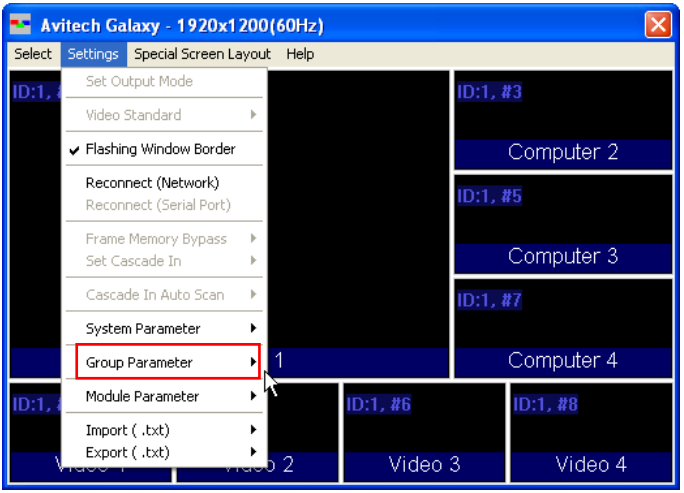
2. Click **Auto Parameter**.



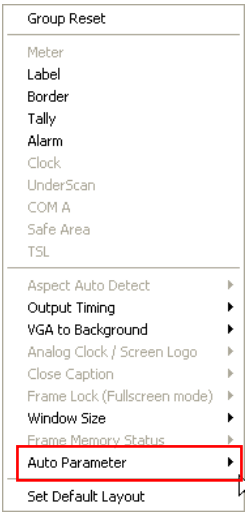
3. Click to unselect (remove the checkmark) the **Detect Display Resolution** option.

Or, you can also perform the following steps for an entire Group:

1. Click **Settings** then **Group Parameter**.



2. Click **Auto Parameter**.



3. Click **Detect Display Resolution**.

4. Then select **Off**.

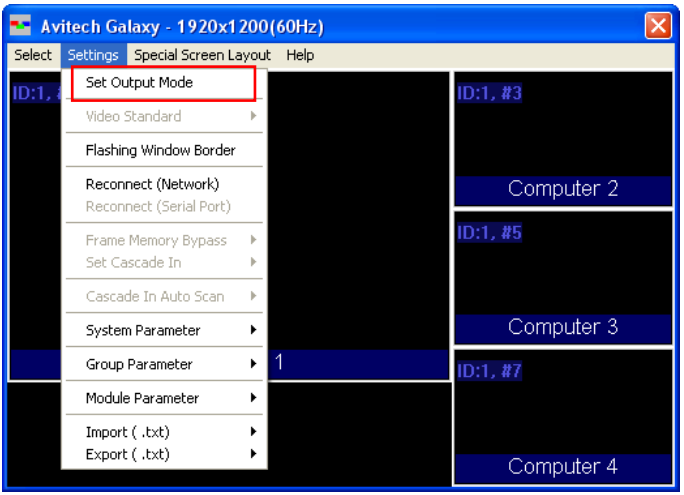
NOTE:

- When the monitor display is unable to provide the EDID signal, it will display at 1024×768 / 60 Hz. The extended display identification data (EDID) is a data structure provided by a computer display to describe its capabilities to a graphics card.
- When the **Detect Display Resolution** option is selected (with checkmark), all the presets will be displayed in the optimum resolution.
- When the **Detect Display Resolution** option is unselected (without checkmark) and you have set the desired resolution using the **Set Output Mode** option, all the presets will be displayed in the desired resolution that you have set.

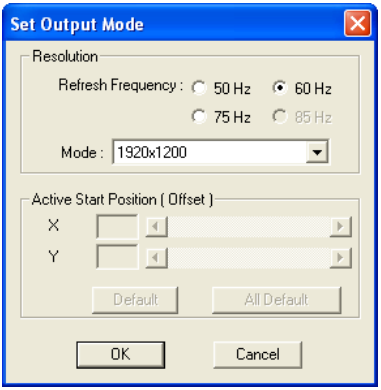
Setting the Desired Output Resolution

By default, the system will automatically detect the optimum resolution for the monitor display. To manually set the desired output resolution, perform the following steps:

1. Make sure the **Detect Display Resolution** option is disabled (see the previous section).
2. Click **Settings** then **Set Output Mode**.



3. Select the **Refresh Frequency** and then select the **Mode** from the drop-down menu.



4. Click **OK** to update to monitor display.

> **NOTE:**
> - When the output resolution is set at 1366×768 / 1400×1050 / 1680×1050 and the display is set at the default 2×2 layout, misalignment will occur due to the software's automatic scaler feature. This is because a window on the monitor display increases/decreases by increments of 16 pixels horizontally, and the midpoint of the 1366×768 / 1400×1050 / 1680×1050 resolution is not divisible by 16 pixels. Oftentimes this also causes the rightmost portion of the monitor display to have a 16 pixel black curtain.
> - When the preset file's output resolution is set below the optimum display resolution, and afterwards the **Detect Display Resolution** option is enabled, small gaps between windows as well as overlapping windows may occur.

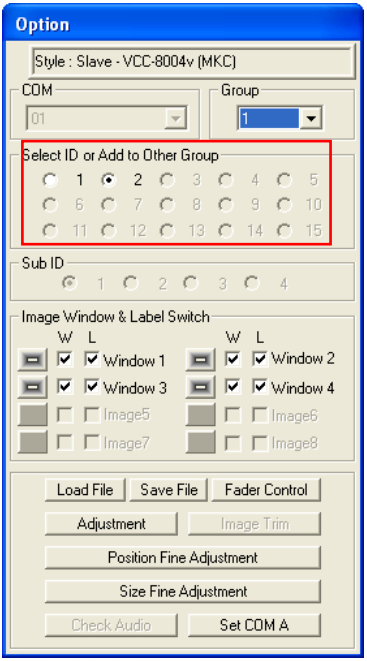
Creating New Groups (for MKC-204)

By default, the Galaxy software will combine all available modules into one group. If you want the modules to be separated into two or more groups, you will need to divide up the modules in the Galaxy software. Also, make sure the modules are wired correctly.

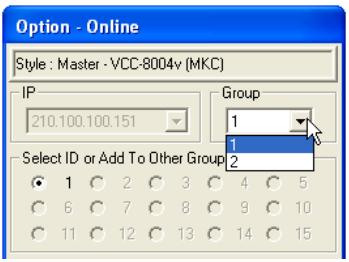
To create a new group, perform the following steps:

Method 1:

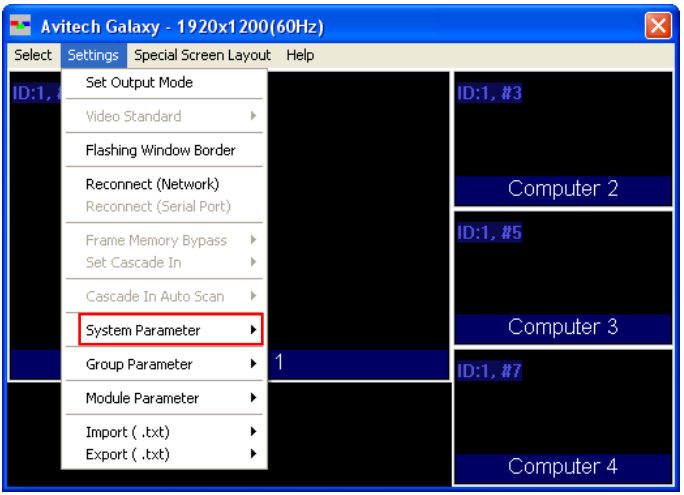
1. On the **Option** window, under **Select ID or Add to Other Group** portion; select the ID and right-click the mouse on it, and then click **New Group**



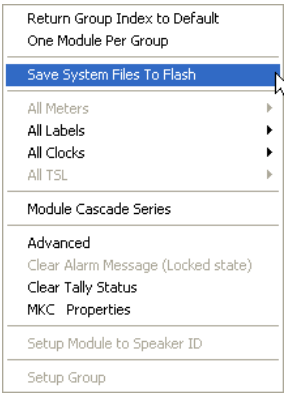
2. To switch between different groups, use the **Group** drop-down menu to select the desired group.



3. Click **Settings**, then **System Parameter**.

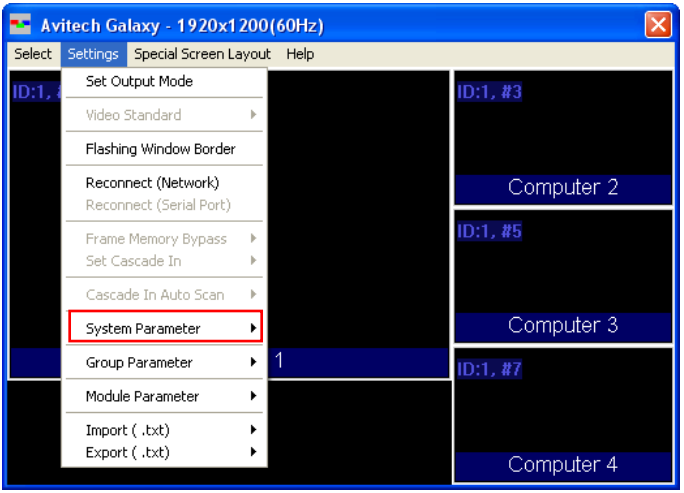


4. Click **Save System Files to Flash** before you perform additional feature configuration. When closing the Galaxy software, select **Yes** when prompted to save to flash memory.

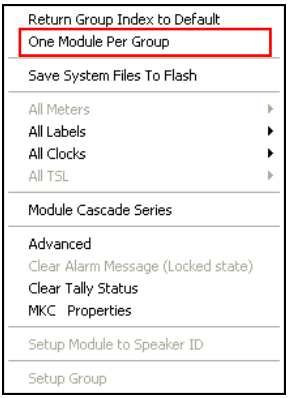


Method 2:

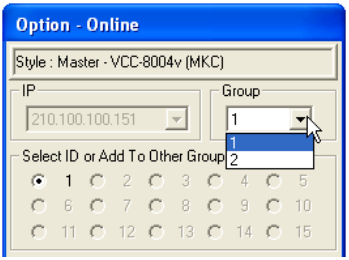
1. Click **Settings** then **System Parameter**.



2. Click **One Module Per Group**.



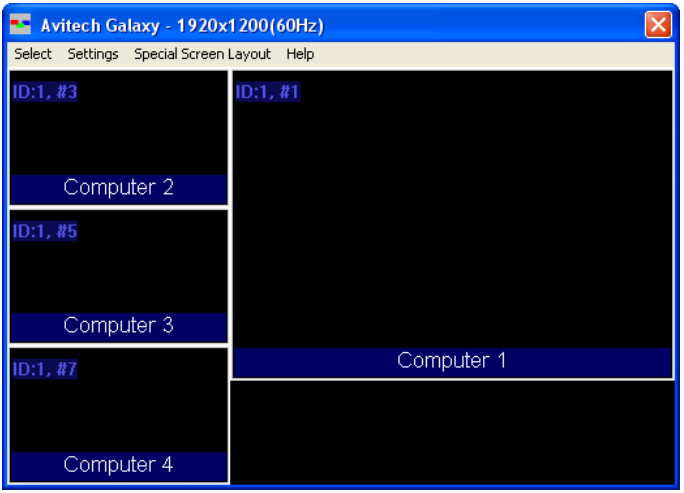
3. To switch to a different group, click the **Group** drop-down menu to select the desired group.



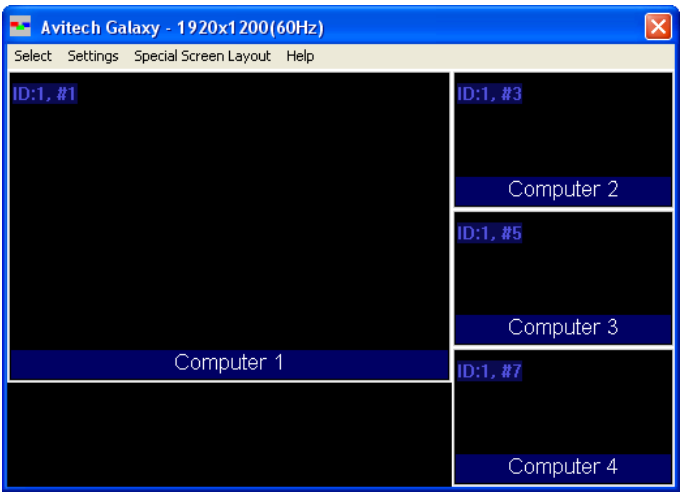
Using the Default Window Layouts

Three default window layouts are available:

layout1.GP1



layout2.GP1



layout3.GP1

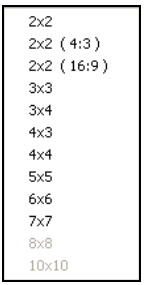
NOTE: To switch between the three factory-default presets, use the **Page Up** / **Page Down** keys. Refer to Chapter 2 on “Using the Keyboard” for more details.

To change to a different window layout, perform the following steps:

1. Right-click the mouse on the title bar portion of the Galaxy software.

2. Click **Group Layout** on the menu that appears.

3. Select the desired window layout from the menu that appears.



Save / Load Preset File

This allows you to save / open the desired window layout.

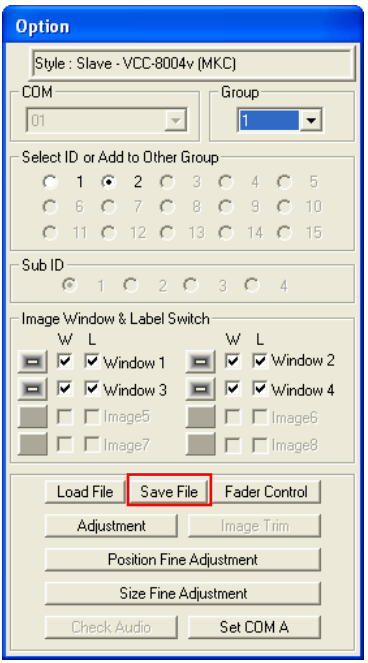
Saving File to Flash Memory

There are two instances where you will need to use the save file to flash memory:

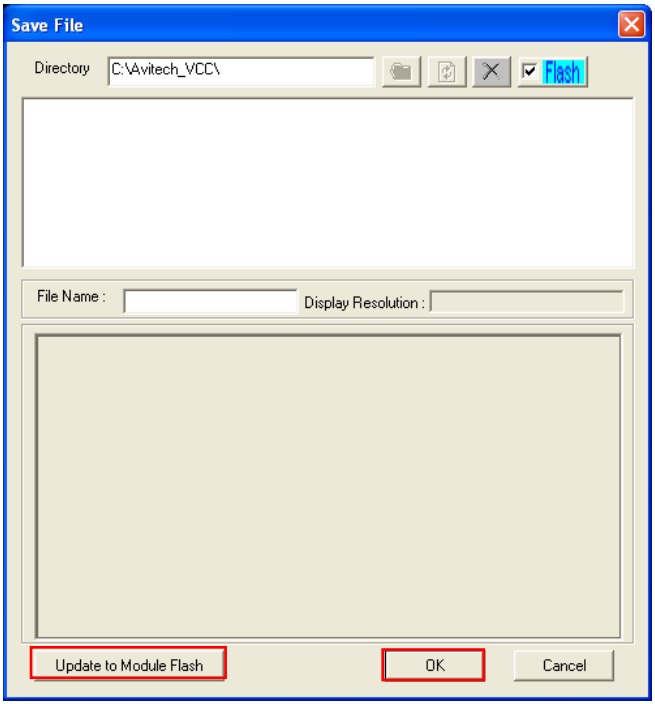
- After creating a master layout and you want the VCC-8000 series to load it again when the unit is power cycled (shutdown and restart).
- After you are done saving presets and you want to save all the presets that were created into the internal flash memory of the module. If this action was skipped, the module will lose all the presets that were created upon shutdown.

To save to flash, perform the following steps:

1. Click **Save File** on the **Option** window.



2. Click **Update to Module Flash**, and then click **OK**.



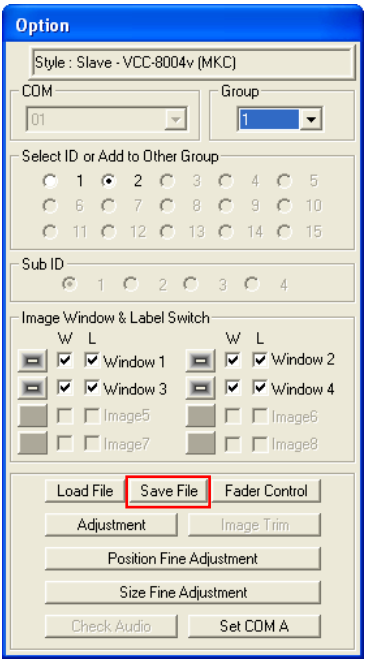
Or, close the Galaxy software and select **Yes** when prompted to save.

Saving a Preset

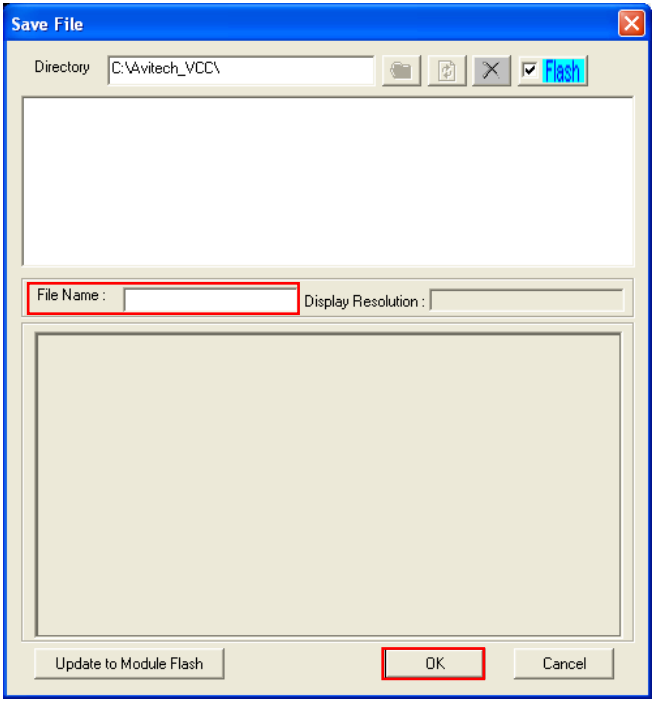
All the presets you create are stored in the VCC-8000 series and not in the computer that is running the Galaxy software. In order to write all the presets into the internal flash memory of the VCC-8000 series module after creating them, you will need to save the presets to flash. To save a preset, perform the following steps:

1. Configure the window layout to how you want it to display.

2. Click **Save File** in the **Option** window.



3. When the next screen appears, enter a unique filename for the preset, and select **OK** to save.



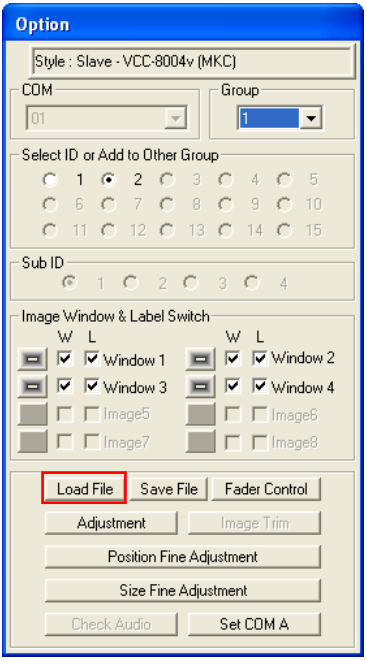
You can use a mixture of alphabets and numbers when naming the filename (up to 30 characters). The file extension **GP#** will be automatically added to the file name.

> **NOTE:**
> - When using a keypad, use the numbers **0** – **9** for your preset names.
> - When using the GPI, use the numbers **1** – **8** for your preset names.

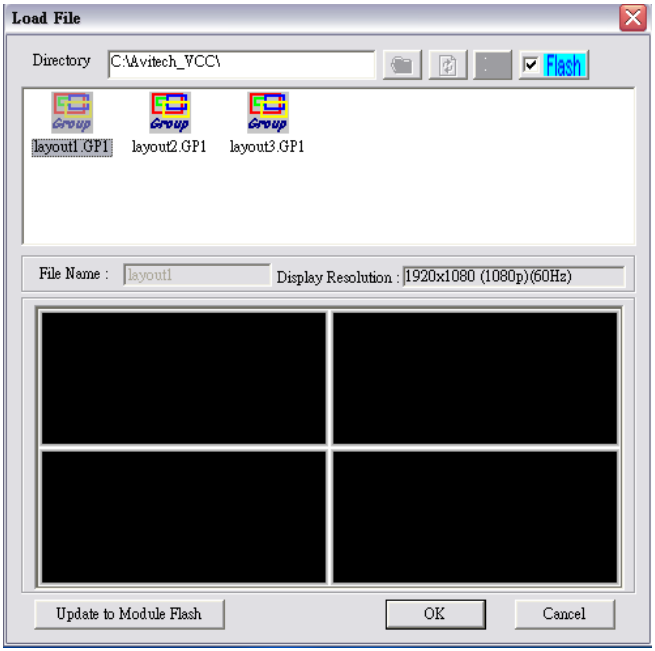
4. Repeat the above steps for each additional presets.
5. After you are done creating presets, load the file that you want to be the master layout, which gets loaded when the VCC-8000 series is powered on.
6. Close the Galaxy software and select **Yes** when prompted to save to flash memory.

Loading File

1. In the **Option** menu, click **Load File**.



2. Select a saved file, and then click **OK** to load the preset.



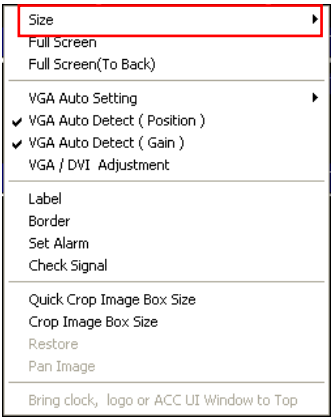
NOTE:

- When saving your preset do not use the same filename as the system's default preset filename (e.g., **`layout1.GP1`** / **`layout2.GP1`** / **`layout3.GP1`**).
- The sequence for loading the preset file when using the hotkeys (↑ / ↓ arrow keys) is based on the time when the preset file was first created and saved. Subsequent modification and saves will not affect this sequence (order).
- The hotkey **Ctrl** + **S** can save the latest preset to flash memory so that on the next VCC-8000 series boot-up the preset will be loaded.

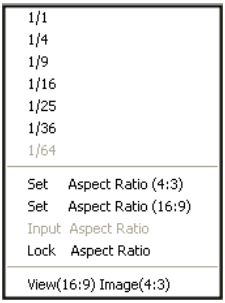
Adjusting the Window Size

To adjust the size of an individual window, perform the following steps:

1. Right-click the mouse on a window and click **Size**.



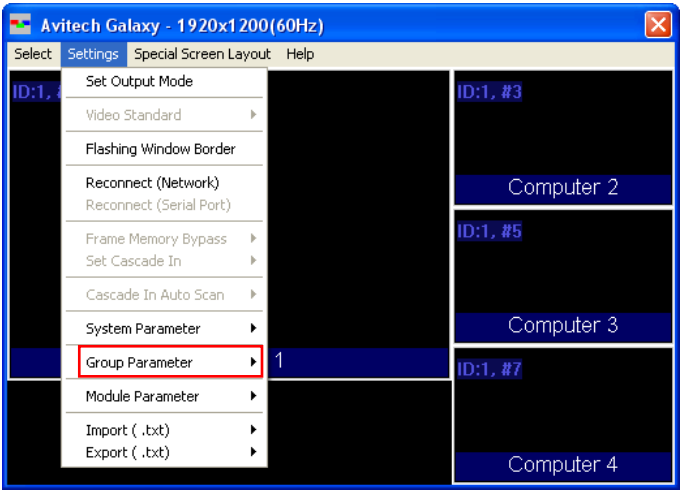
2. Then select the desired size.



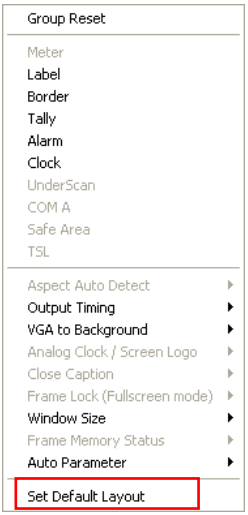
Viewing Multiple Windows

When you have multiple modules and want to quickly configure them to see all the available windows, perform the following steps:

1. Click **Settings** then **Group Parameter**.



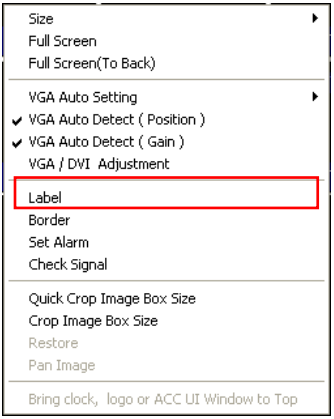
2. Click **Set Default Layout**.



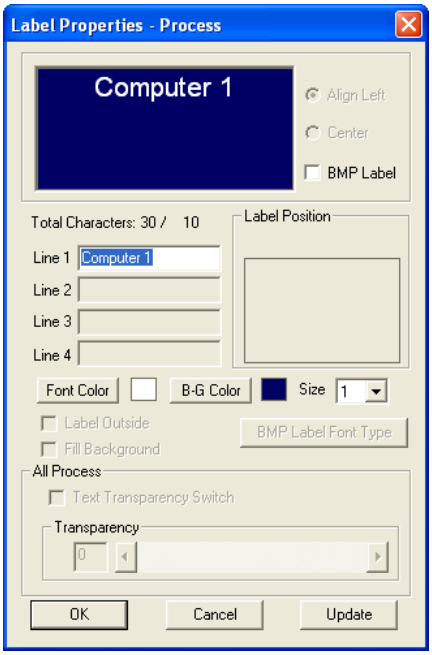
Using the Label / Border Features

To change label / BMP label content, perform the following steps:

1. Right-click on a particular window, then click **Label**.



2. Rename the label in **Line 1**.



3. Click 

to change the label's font color.

4. Click 

to change the label's background color.

5. Click 

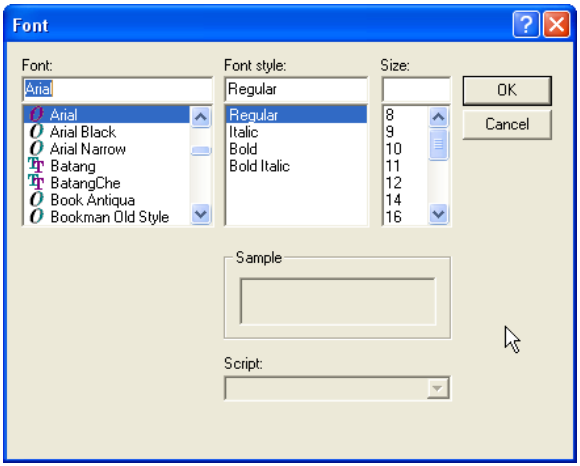
to change the label's font size.

6. If you would like to use Unicode font, click 

to select it, then click 

.

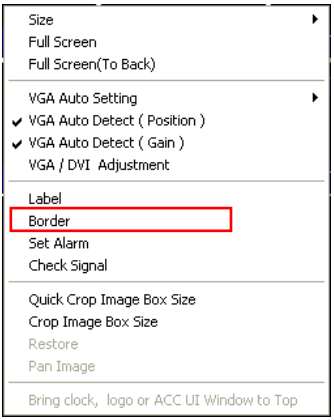
7. Select the **Font** / **Font style** / **Size** and click **OK** to apply it.



Changing the Border Width

To change border width, perform the following steps:

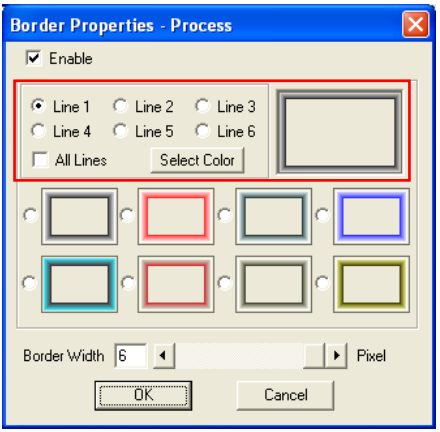
1. Right-click the mouse on a particular window and select **Border**.



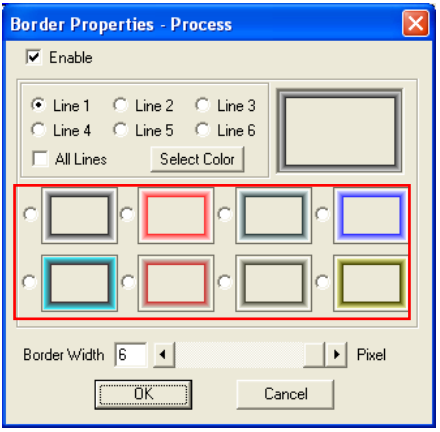
2. The default option is **Enable**  .

3. There are two options for border appearance:

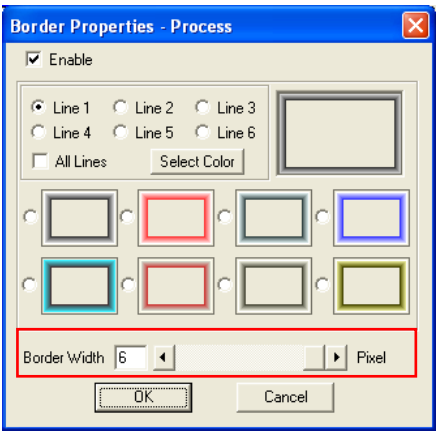
   - Each line in different color. Or, set all line to be the same color. Click the radio button to select the **Line #**. Click **Select Color** to choose the color, and then click **OK** to apply.



- There are eight options for choosing the 3D border. Click one of the 3D border's radio button to select it, then click **OK** to apply.



4. Use the slider on the item for **Border Width** or type in the value to set the width of the border. Enter **0** to disable the border or **6** for the maximum border width.

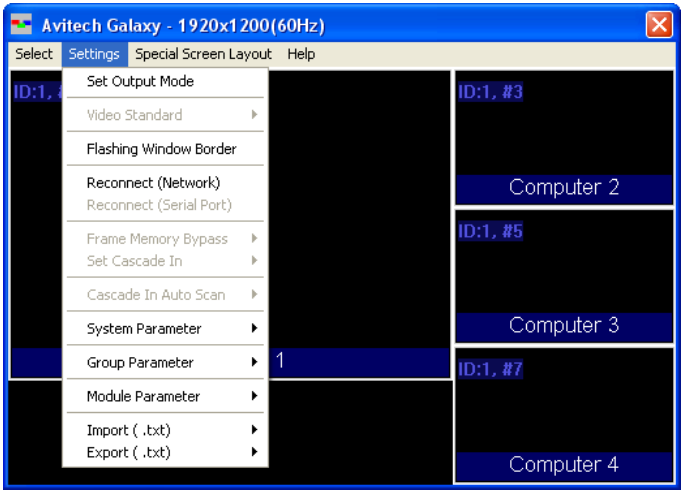


NOTE: Upon changing the **Border Properties**, the border properties of the active window is not affected.

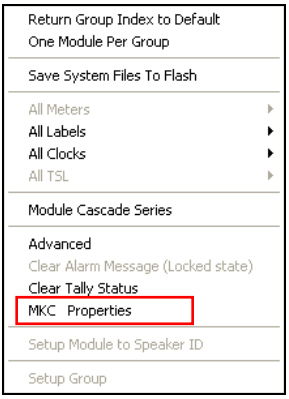
Setting the Various MKC Properties Features

To set various **MKC Properties** features, perform the following steps:

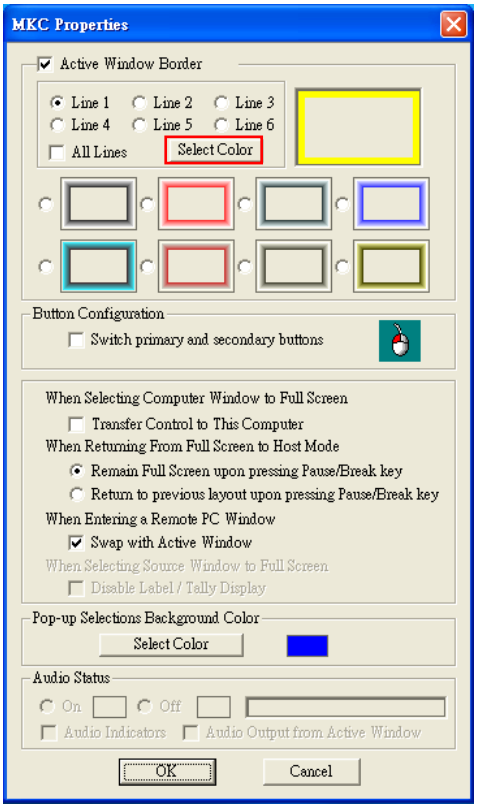
1. Click **Settings**.



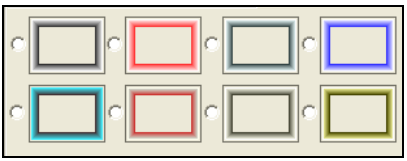
2. Click **System Parameter**, then **MKC Properties**.



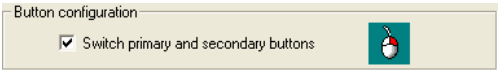
3. The **MKC Properties** window will appear. The **Active Window Border** feature allows you to set the border color of the active window. Each pixel / line can have a different color or set all lines to be the same color (**All Lines**) by clicking the radio button to select the **Line #**. Then click **Select Color** to choose the color.



There are eight options for choosing the 3D border. Click one of the 3D border's radio button to select it.



4. To swap the two mouse buttons so that you can use the right button as the left button, click the checkbox to enable **Switch primary and secondary buttons**.



5. If the item **Transfer control to This Computer** is enabled (with checkmark), keyboard / mouse control will transfer to the particular window (computer) that has just entered full screen mode.

> **NOTE:** Default setting is disabled (keyboard / mouse control does not transfer to a particular computer that enters full screen mode).

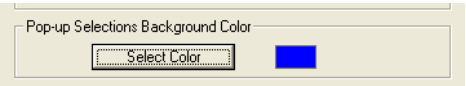
6. Click the radio button for **Remain Full Screen when pressing Pause/Break key** under the item **When Returning From Full Screen to Host Mode** if you wish to remain in full screen mode upon pressing the **Pause/Break** key.

> **NOTE:** Default setting is **Return to previous layout when pressing Pause/Break key**.

7. When the item **Swap with Active Window** is enabled (with checkmark) – the action of entering a computer window (other than the current active window) will cause both active and newly entered windows to swap position.

> **NOTE:** Default setting is enabled for this item.

8. Click **Select Color** to change the background color of the pop-up selections (default color is dark blue).



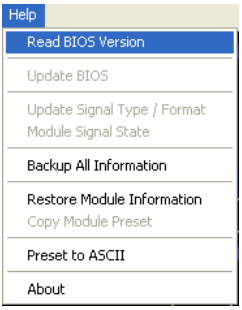
9. Then click **OK** when finished and exit the **MKC Properties** window.
The Galaxy software retains the settings until the next time you change the settings in the **MKC Properties** window or you return the system to the factory-default state.

> **NOTE:** Other Galaxy software commands for controlling your VCC-8000 series are available. Refer to the VCC-8000 series manual for more details.

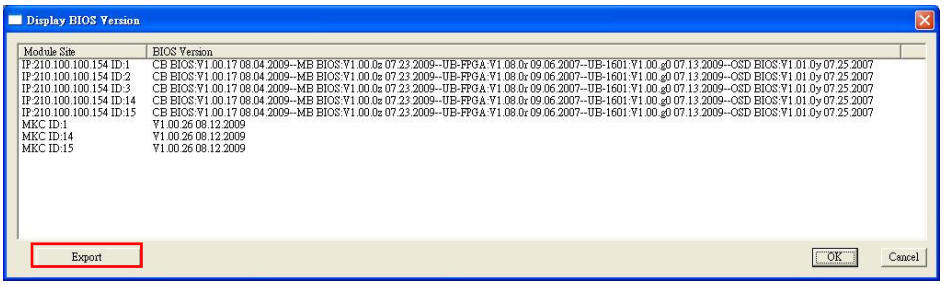
Read BIOS Version

To find out the Avitech VCC-8000 series module firmware version, perform the following steps:

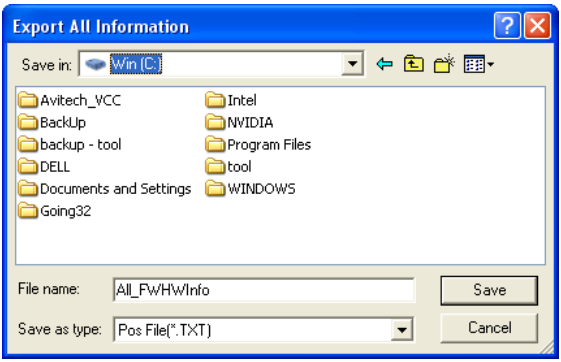
1. Click **Help**, and then click **Read BIOS Version**.



2. When the following screen appears, click **Export**.



3. Assign a filename and click **Save** to save the data.

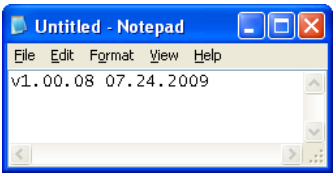


NOTE: You can read the MKC BIOS version only when using IP to connect and the RJ-45 to RS-232 cable between the MKC's (ID1 "Master") **Host** port and VCC-8000 series' (ID1 "Master") **Keypad** port has never been disconnected upon entering the Galaxy software.

To find out the Avitech MKC firmware version, perform the following steps:

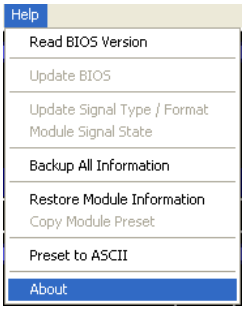
NOTE: This is possible only if the computer and MKC is connected via the USB-A to USB-B cable.

1. Make sure that the cursor is at remote (computer) mode.
2. Run the Microsoft® Notepad program and press **Ctrl + Shift + Alt + V** on your keyboard. You can now read the MKC firmware version.



Read Galaxy Information

1. Click **Help**, and then click **About**.



2. You should see a pop-up box showing the Galaxy software information.

A Firmware Upgrade

This chapter familiarizes you with updating the firmware of your Avitech MKC as well as with resetting it to the factory-default value.

Firmware update is divided into two main processes:

- USB Host controller firmware update process
- Device driver installation (the first time you use the particular computer to update the firmware)

A.1 Updating the Firmware

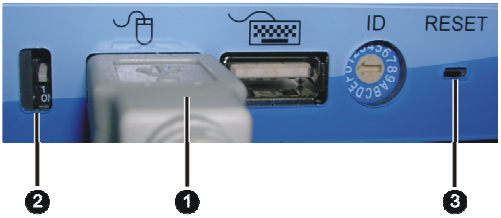
Updating the USB Host Controller Firmware

To update the USB Host controller firmware, perform the following steps:

1. Use a USB cable to connect one end to the MKC front panel's USB mouse port and the other end to the computer's USB port.

   NOTE: Do not connect to the USB keyboard port, it cannot be used to update the firmware.

2. Use a small sharp-pointed object and push down the dip switch to the **ON** (**1**) position.
3. Use the small sharp-pointed object and press the **RESET** switch (upon pressing the **RESET** switch, the **Safely Remove Hardware**  icon may appear on the Windows taskbar).



NOTE:

- If at this time the message "computer has detected an unknown device" appears onscreen, you need to install the device driver (refer to the next section "Installing the Device Driver").
- After installing the device driver, repeat the USB Host controller firmware upgrade steps again from the beginning.

4. Use the small sharp-pointed object and push back up the dip switch.

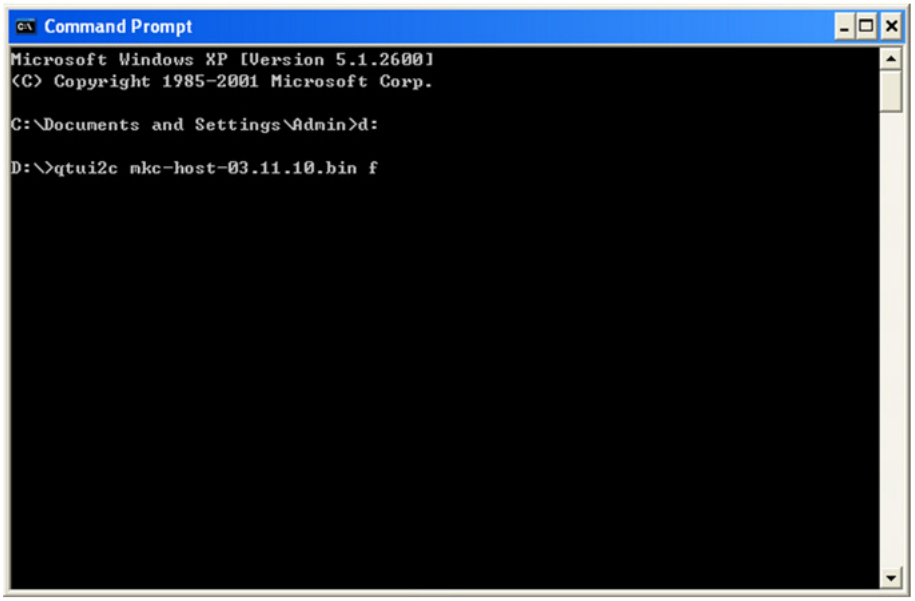
NOTE: If you do not return the dip switch to the upward position, the firmware update will not be successful. You will then need to press the **RESET** switch again and return the dip switch to the upward position.

5. Click **Start→Programs→Accessories→Command Prompt** to enter DOS mode.

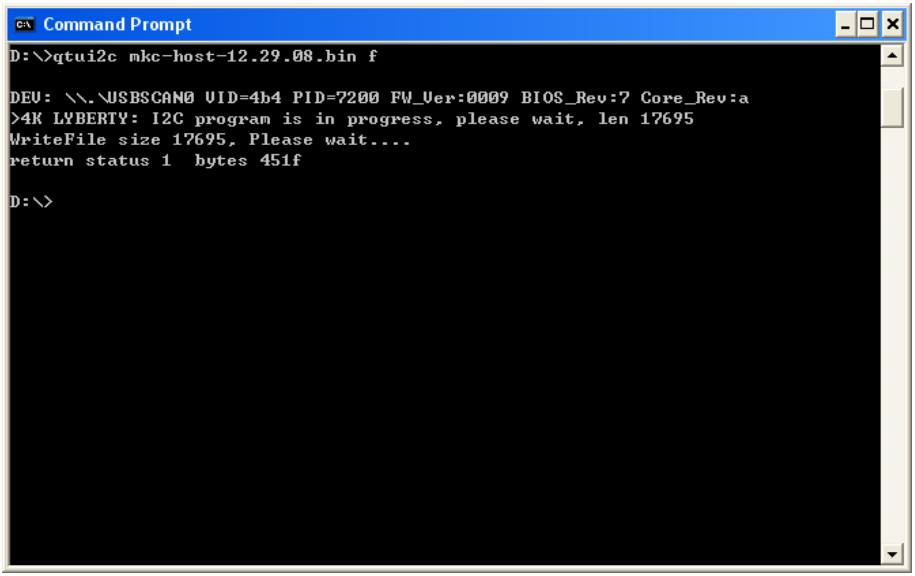
6. Type "qtui2C mkc-host-xx.xx.xx.bin f" (where "xx.xx.xx" is the firmware version's release date). The software will start the update process.

NOTE: In the future this may be integrated into the Galaxy software, the firmware update method will then be the same as the other Avitech product lines.

IMPORTANT: Make sure the MKC host firmware file is located on the same drive and directory as the "**qtui2C.exe**" software file.



7. The update firmware process takes approximately 100 seconds.



8. Type “Exit” to quit the **Command Prompt** screen.

9. After the firmware update process has finished, use the small sharp-pointed object to press the MKC **RESET** switch.

> **NOTE:** Shutdown and startup of MKC needs to be done to completely update the USB Host controller firmware.

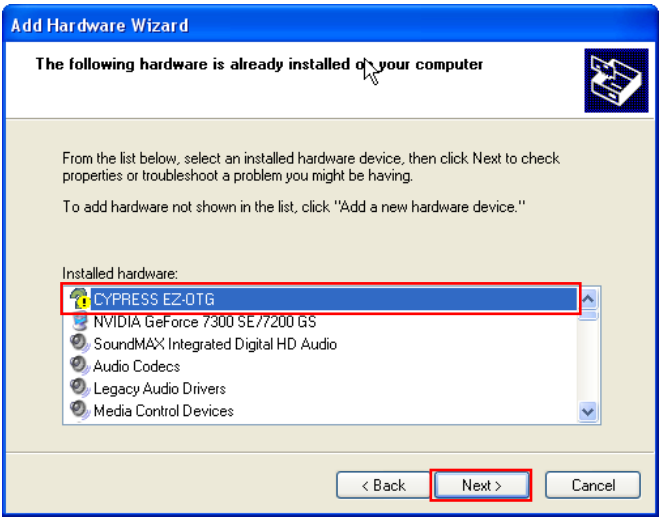
You can start using the MKC by making sure that the remote computer, USB keyboard and mouse has been connected to the MKC.

Installing the Device Driver

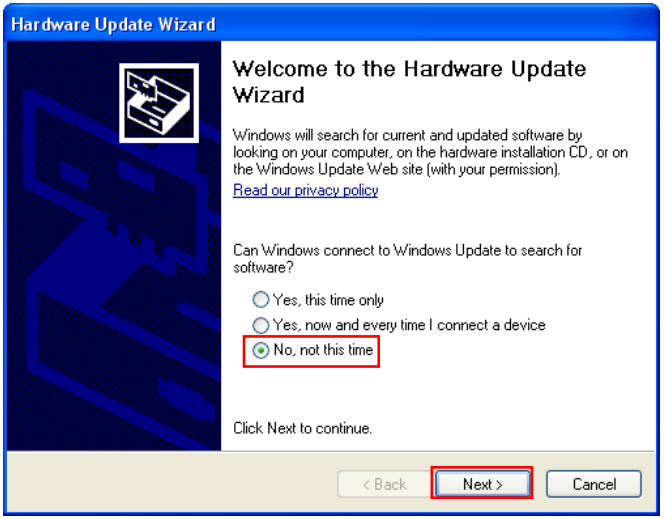
> **NOTE:** You need to install the device driver only in the following conditions –
> - When updating the firmware using a particular computer for the first time.
> - When you change the operating system of the computer.

To install the device driver, perform the following steps:

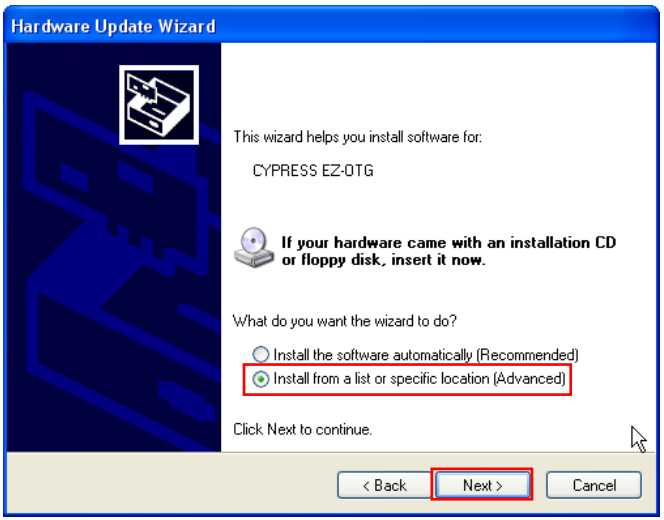
1. Go to your Windows' **Control Panel**, and then select **Add Hardware**. The **Add Hardware Wizard** screen will appear. Click **CYPRESS EZ-0TG** to highlight it, and then click **Next**.



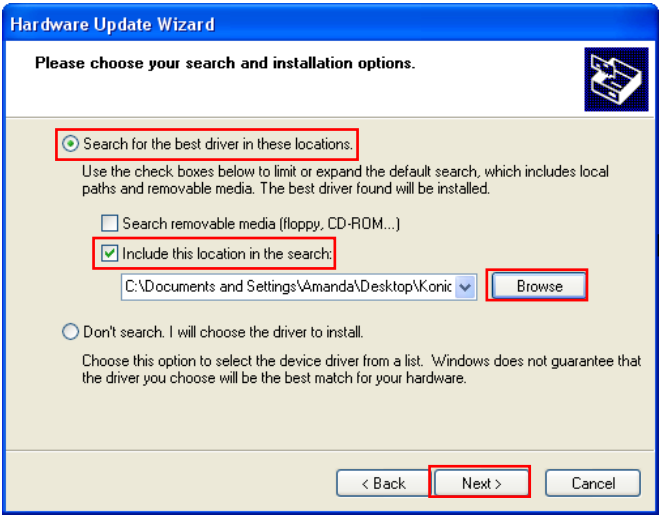
2. The **Hardware Update Wizard** screen will appear. Select the radio button for **No, not this time** and then click **Next**.



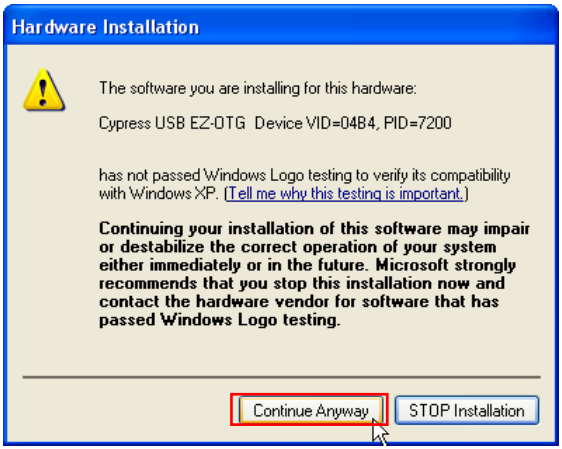
3. When the next screen appears, click the radio button for **Install from a list or specific location (Advanced)** to select it and then click **Next**.



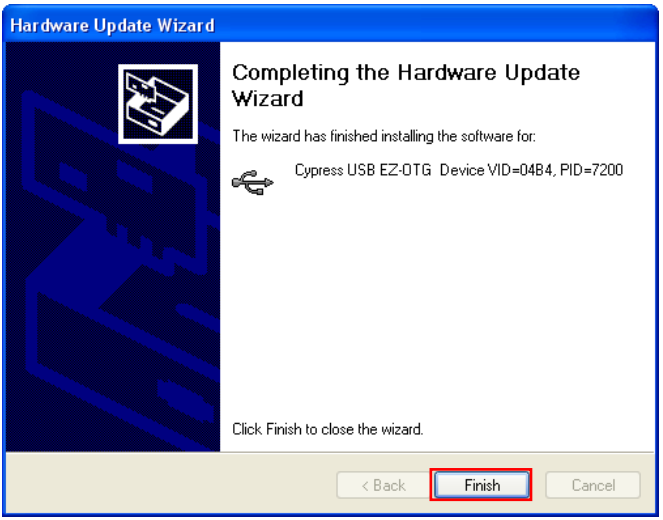
4. When the next screen appears, click on the radio button for **Search for the best driver in these locations** to select it, and then click on the checkbox for **Include this location in the search** to select it. Click **Browse** to specify the location of the device driver file, and then click **Next**.



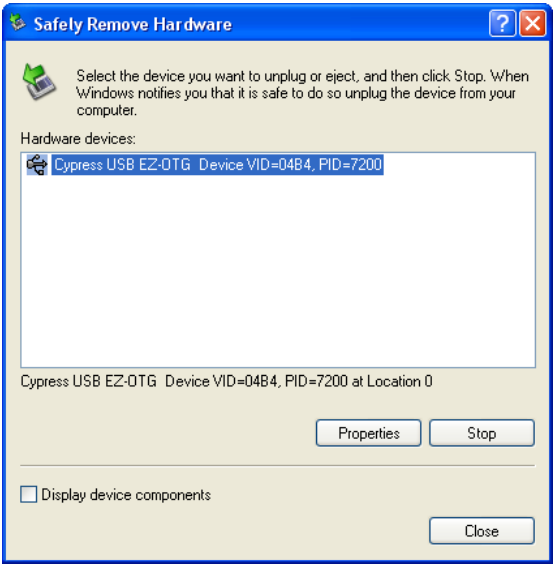
5. When the next screen appears, click **Continue Anyway**.



6. When the next screen appears, click **Finish** to exit device driver installation.



7. After successfully installing the device driver, the computer can now detect the MKC device name. To check, double-click the **Safely Remove Hardware** icon found on the Windows taskbar and the following screen will appear.



A.2 Resetting to the Factory-Default State

To reset your VCC-8000 series to its factory-default state, perform the following steps:

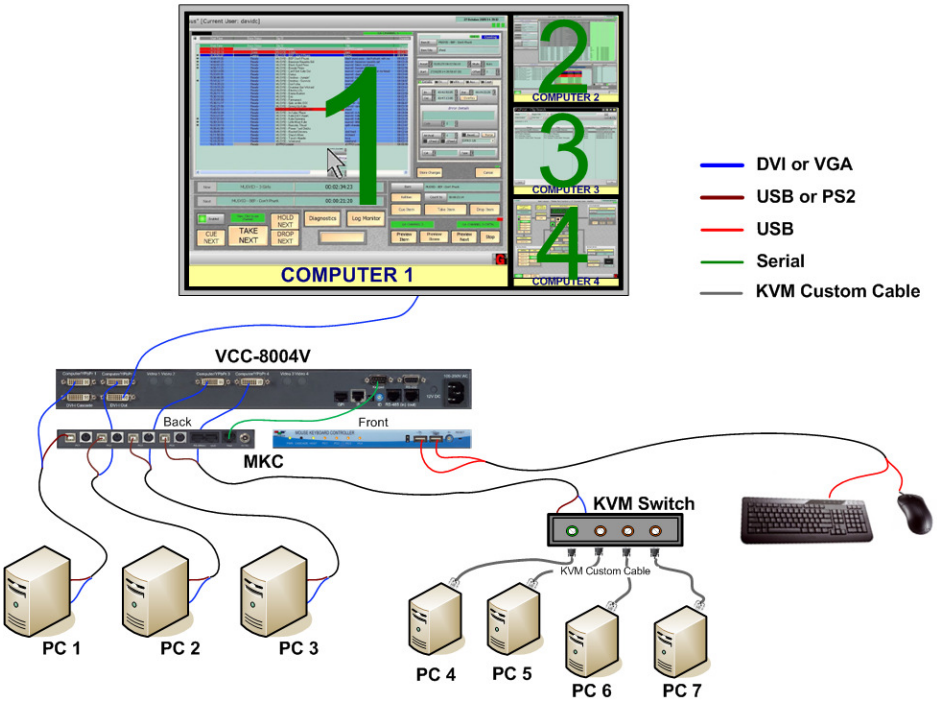
1. Power-off the VCC-8000 series by unplugging the power cord.
2. Push the number **2** dip switch located on the VCC-8000 series rear panel downward to the **ON** position.

3. Power-on the VCC-8000 series by plugging in the power cord (make sure that power is available).
4. Push back the number **2** dip switch upward to the default position.

> **NOTE:** Upon resetting your device to the factory-default state, your previously saved preset files will be automatically removed. You need to use the Galaxy software to set the output resolution and create the preset file(s) again.

B Using the MKC With KVM

The following figure shows a sample setup of a single group with one Avitech MKC and one VCC-8000 series connected to seven computer systems and one KVM (keyboard video mouse) switch.



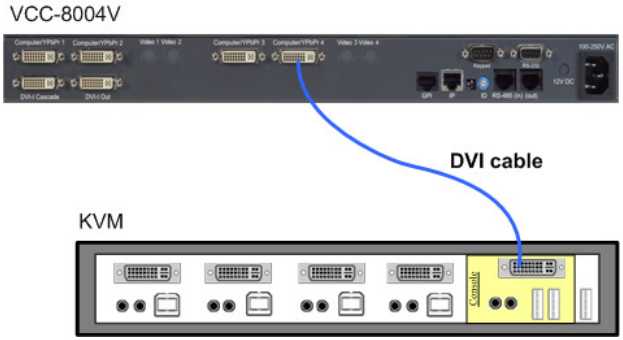
To set up one Avitech MKC and one VCC-8000 series and one KVM, perform the following steps:

1. Make sure the VCC-8000 series has the factory-default setting by performing the following steps.
   a. Power off the VCC-8000 series.
   b. Flip the right dip switch (**2**) down.
   c. Power on the VCC-8000 series for 20 seconds.
   d. Flip the right dip switch (**2**) back up.

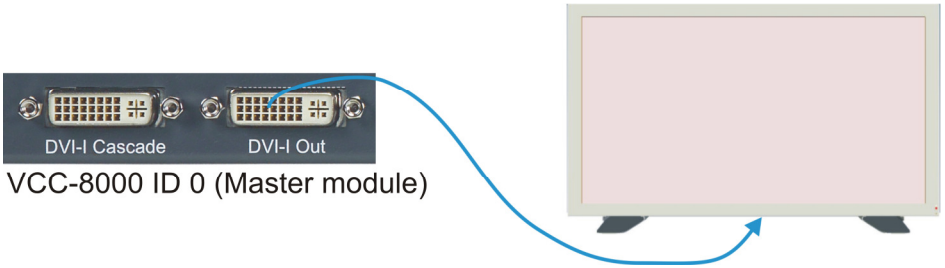
> **NOTE:**
> - Another method is to enter the Galaxy software to confirm if the baud rate for COM A is set at 57600 bps. If not, set it to 57600 bps.
> - Upon resetting your device to the factory-default state, your previously saved preset files will be automatically removed. You need to use the Galaxy software to set the output resolution and create the preset file(s) again.

2. Set the rotary **ID** on the Avitech VCC-8000 series to **0**. The rotary ID set at **0** indicates Master (it will show ID 1 on the Galaxy software).

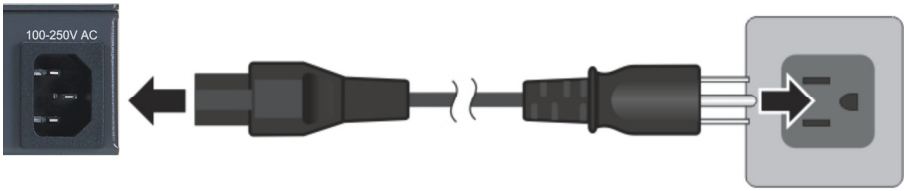
3. Connect the four DVI / VGA / YPbPr signal cables between the VCC-8000 series' **Computer/YPbPr** ports and the three computer's DVI / VGA ports and one KVM's console DVI port.
   PC1 connects to the **Computer/YPbPr 1** port,
   PC2 connects to the **Computer/YPbPr 2** port,
   PC3 connects to the **Computer/YPbPr 3** port,
   KVM console's DVI port connects to the **Computer/YPbPr 4** port.



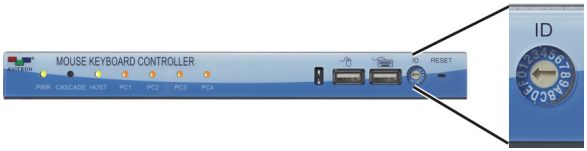
4. Connect the monitor display's DVI / VGA cable to the VCC-8000 series' **DVI-I Out**put port.



5. Connect the power cable to the VCC-8000 series and make sure that power is available.



6. Set the rotary **ID** of the Avitech MKC to **0**.



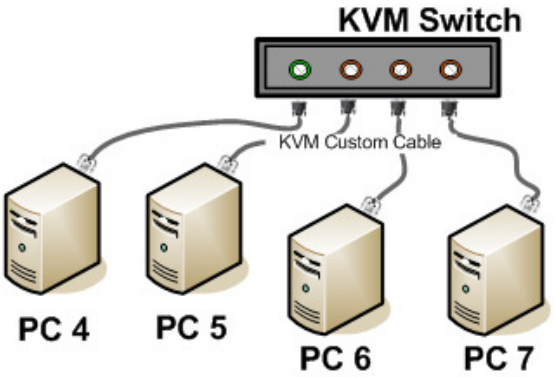
> **NOTE:** If the rotary **ID** of the Avitech VCC-8000 series is not set to **0**, then make sure to set the rotary **ID** of the Avitech MKC to be the same as the VCC-8000 series' (e.g., the VCC-8000 series is set at **5**, then the MKC must also be set to **5**).

7. Connect the mouse and keyboard devices to the corresponding mouse and keyboard USB ports located on the MKC's front panel.

> **NOTE:** If the mouse and keyboard is not connected to the corresponding mouse and keyboard USB ports located on the MKC's front panel, the MKC can still function properly.

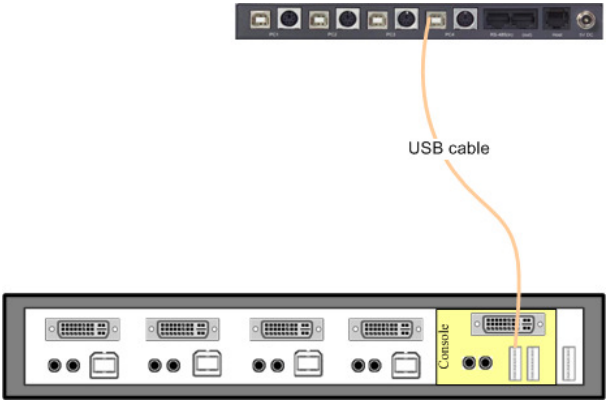
8. Connect the RJ-45 to RS-232 cable between the MKC's **Host** port and VCC-8000 series' **Keypad** port.

9. Connect the KVM's DVI / USB cable between the computers to the KVM switch.

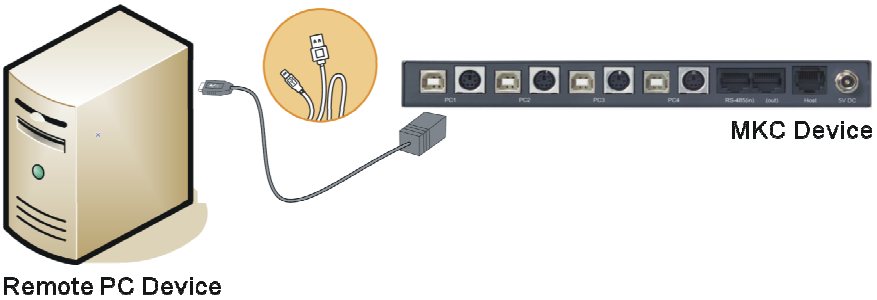


NOTE: The proprietary KVM cable is required when connecting the KVM switch to the four computer systems. Refer to the KVM user's manual for more details.

10. Use the MKC's included USB-A to USB-B cables by connecting the USB-A end of the cable to the KVM console's USB port, and the other USB-B end of the cable to the MKC's **PC4** USB port located on the rear panel.



11. Use the USB-A to USB-B cables or PS/2 Y cables to perform the following. Connect the USB-A end of the cable to the computer's USB port and connect the USB-B end to the MKC's **PC1** USB port (on the rear panel). Or, use the PS/2 Y-cable to connect one end to the computer's mouse and keyboard PS/2 ports and the other end to the MKC's **PC1** PS/2 port (on the rear panel).
    For the next two computers use the USB-A to USB-B cables or PS/2 Y cables to connect to the MKC's **PC2 / PC3** USB or PS/2 ports.



12. Move the mouse or press **Pause/Break** key and you will see the mouse pointer on the monitor display. You can now use the mouse or keyboard hotkeys to perform various tasks (refer to a previous chapter for a description of the hotkeys function).

The default mouse and keyboard is located on the VCC-8000 series (Host) end.

Take note of the following when connecting and using the KVM:

- Controlling PC4 – PC7 is done via the buttons located on the KVM's console or using the KVM designated hotkeys.
- Due to the possibility that power to the MKC may be inadequate when connected to the KVM, it is highly recommended to connect the 5V AC/DC switching adapter to the MKC (ID0) and make sure that power is available.
- When using the KVM's VGA / PS/2 / USB cable and connection between the computer's keyboard / mouse to the KVM is via the PS/2 interface, you need to first turn off power to the computer before making the connection. The PS/2 interface is not hot-pluggable, so the PS/2 connection must be made before powering on the computer.

The following are the limitations when connecting using the KVM:

- The keyboard and mouse to be connected to the KVM's console port must support the USB composite device specification to be able to successfully connect to the MKC.
- If PS/2 is the only available interface on your KVM's console for connection with the MKC, then a case-by-case solution is required. Contact your local Avitech sales representative for support.

C Glossary

DDC (Display Data Channel) VESA standard for communication between a monitor display and a video adapter. Using DDC, a monitor can inform a computer's video card about its properties, such as maximum resolution and color depth, to ensure that the user is presented with valid options for configuring the display.

Editing Window An image window that is presently used for editing.

Group (screen) A collective number of video or image windows showing on a monitor display.

Host Cursor The arrow shaped cursor generated by the VCC-8000 series. This can move from window to window and between screens. It can be used to size and position a window and other functions.

KVM Switch An acronym that stands for **K**eyboard **V**ideo **M**ouse. A typical KVM switch lets you share a monitor display, and one USB keyboard and mouse, with a specific number of computers. Its compact design helps you organize and save your desk space by reducing clutter.

Remote System Computer or a KVM switch that has its mouse / keyboard connected to the MKC and its image output is shown as a window on VCC-8000 series.

Rotary ID Selector Switch A circular dip switch used to set a unique ID to each VCC-8000 or MKC module. The rotary ID selector switch's range spans from **0** – **9** and then from **A** – **F**. For the Galaxy software to recognize specific modules in a group, each module in a group setting HAS to have a unique ID number. When ran, the software will detect a module's specific ID and add unity to it. Therefore, if a module has an ID of **1**, the software will detect it as **ID2** while an ID of **2** will be detected as **ID3**, and so forth.

D Frequently Asked Questions

This chapter guides you to some of the questions you may encounter when using your MKC.

Question:
Can I read the firmware version when starting up the Galaxy software via the RS-232 port?

Answer:
No. When using the RS-232 port to connect, you will need to disconnect the cable connecting the MKC via the Keypad port. This will cause a disconnection on data transmission between the MKC and VCC thereby causing you to be unable to read the firmware version. Use IP to connect and start the Galaxy software instead because both IP and Keypad ports can be connected simultaneously.

Question:
Can I set a different ID number for the MKC and VCC-8000 modules?

Answer:
No. Both ID numbers must be the same. When both the MKC and VCC-8000's ID number has been changed, you need to restart the devices.

Question:
When cascading multiple MKC and VCC-8000, is there a limitation when setting the sequence of the ID numbers?

Answer:
Yes. The VCC-8000 that belongs to the same group (cascaded via the DVI cable) must follow the Module ID's sequence from smallest to the biggest (Master Module has the smallest ID number). The VCC-8000 in the Group that has the biggest Module ID number will output to the monitor display.

Question:
Can I change the value for baud rate?

Answer:
No. The baud rate used by the RJ-45 to RS-232 cable to connect MKC and VCC-8000 must be set at 57600 bps.

Question:
Can I connect the DVI / VGA cable (that carries the computer's video signal) to any of the VCC-8000 rear panel's **Computer/YPbPr** ports?

Answer:
No. The computer that connects via the MKC's **PC1** DVI / VGA cable must be connected to the VCC-8000 rear panel's **Computer/YPbPr 1** port.

Question:
When the mouse / keyboard is not working, can I disconnect then reconnect the cables?

Answer:
Yes. You can disconnect then reconnect the mouse / keyboard cables.

Question:
The mouse / keyboard cannot function properly when using the USB extender.

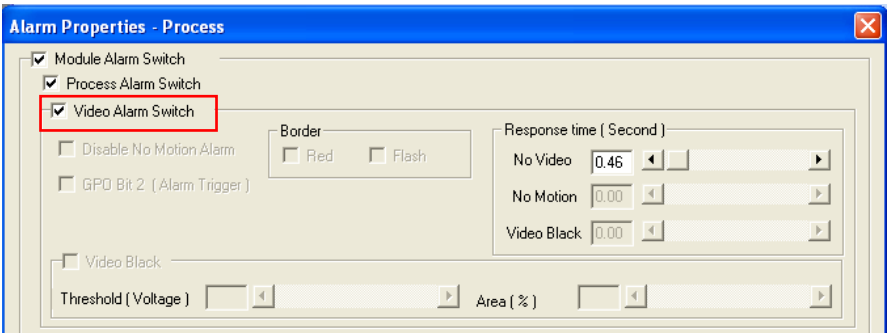
Answer:
If you can connect external power to the USB extender, then connect it to an external power source. If not, then connect the MKC to the power adapter (to increase the power supply).

Question:

When the computer displays the image via the DVI / VGA cable and outputs to the VCC-8000 window, during a period of inactivity the computer may enter Sleep mode and the VCC-8000 window will display the "NO VIDEO" alarm message. How do I disable this alarm message?

Answer:

- When the computer enters Sleep mode and no video signal is outputted, the VCC-8000 window will display **NO VIDEO**. Just move the mouse or press any key on the keyboard to return the video display. The VCC-8000 cannot detect when the computer enters Sleep mode. It is recommended that you enable the computer's screensaver function to allow the computer to continuously provide the output signal. This will enable it to properly recognize an actual **NO VIDEO** condition or computer Sleep mode state.
- In the Galaxy software go to **Group Parameter→Alarm→Alarm Properties** and unselect (disable) the **Video Alarm Switch** checkbox.



Question:

When I changed the system setup, can I still use the backup file?

Answer:

No. Upon changing the system setup, the previously saved settings will be changed. This is why an old configuration cannot be used on a new setup.

Question:
Can I use a PS2 keyboard by connecting it to the MKC using the PS2-to-USB adapter?

Answer:
No. The keyboard uses the PS2 interface, it cannot function properly when you connect it to the MKC using the PS2-to-USB adapter.

Question:
When two VCC-8000 are cascaded together via the DVI cable and the automatic detect display resolution feature is on, the display resolution for both VCC-8000 is not the same when I power cycle (shutdown and restart), and the image cannot display properly.

Answer:
When the VCC-8000 is reset to the factory-default setting or when you perform a power cycle, the automatic detect display resolution default setting will be turned on. When you cascade two VCC-8000, the first VCC-8000 (ID:1 Master module) will have a 1024×768 resolution, while the second VCC-8000 (ID:2, Slave module) will have the monitor display's optimum resolution. The second VCC-8000 must command the first VCC-8000 to change the display resolution. If the first VCC-8000 has not completely started, it cannot accept the command from the second VCC-8000 thereby causing both VCC-8000 to have different display resolutions and unable to display properly. Connect and enter the Galaxy software and use the **Group Parameter→Auto Parameter→Detect Display Resolution→On** feature. This will allow the image to display properly.

Question:
When I use the VGA-to-DVI adapter on the VGA cable to output to the monitor display, can it still automatically adjust to the optimum resolution (1920×1200)?

Answer:
No. Use the DVI cable when using the automatically detect display resolution function.